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THE ALASKAN ENGINEERING COMMISSION

SERVICE MONOGRAPHS
OF THE
UNITED STATES GOVERNMENT

№ 4

INSTITUTE FOR GOVERNMENT RESEARCH

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**THE ALASKAN ENGI-
NEERING COMMISSION
ITS HISTORY, ACTIVITIES
AND ORGANIZATION**

THE INSTITUTE FOR GOVERNMENT RESEARCH

Washington, D. C.

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INSTITUTE FOR GOVERNMENT RESEARCH

**SERVICE MONOGRAPHS
OF THE
UNITED STATES GOVERNMENT
No. 4**

THE ALASKAN ENGI- NEERING COMMISSION

**ITS HISTORY, ACTIVITIES
AND ORGANIZATION**

**BY
JOSHUA BERNHARDT**

UNIV. OF
CALIFORNIA



**D. APPLETON AND COMPANY
NEW YORK LONDON**

1922

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**SERVICE MONOGRAPHS OF THE UNITED STATES
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FOREWORD

The first essential to efficient administration of any enterprise is full knowledge of its present make-up and operation. Without full and complete information before them, as to existing organization, personnel, plant, and methods of operation and control, neither legislators nor administrators can properly perform their functions.

The greater the work, the more varied the activities engaged in, and the more complex the organization employed, and more imperative becomes the necessity that this information shall be available—and available in such a form that it can readily be utilized.

Of all undertakings, none in the United States, and few, if any, in the world, approach in magnitude, complexity, and importance that of the national government of the United States. As President Taft expressed it in his message to Congress of January 17, 1912, in referring to the inquiry being made under his direction into the efficiency and economy of the methods of prosecuting public business, the activities of the national government "are almost as varied as those of the entire business world. The operations of the government affect the interest of every person living within the jurisdiction of the United States. Its organization embraces stations and centers of work located in every city and in many local subdivisions of the country. Its gross expenditures amount to billions annually. Including the personnel of the military and naval establishments, more than half a million persons are required to do the work imposed by law upon the executive branch of the government.

"This vast organization has never been studied in detail as one piece of administrative mechanism. Never have the foundations been laid for a thorough consideration of the relations of all its parts. No comprehensive effort has been made to list its multifarious activities or to group them in such a way as to present a clear picture of what the government is doing. Never has a complete description been given of the agencies through which these activities are performed. At

no time has the attempt been made to study all of these activities and agencies with a view to the assignment of each activity to the agency best fitted for its performance, to the avoidance of duplication of plant and work, to the integration of all administrative agencies of the government, so far as may be practicable, into a unified organization for the most effective and economical dispatch of public business."

To lay the basis for such a comprehensive study of the organization and operations of the national government as President Taft outlined, the Institute for Government Research has undertaken the preparation of a series of monographs, of which the present study is one, giving a detailed description of each of the fifty or more distinct services of the government. These studies are being vigorously prosecuted, and it is hoped that all services of the government will be covered in a comparatively brief space of time. Thereafter, revisions of the monographs will be made from time to time as need arises, to the end that they may, as far as practicable, represent current conditions.

These monographs are all prepared according to a uniform plan. They give: first, the history of the establishment and development of the service; second, its functions, described not in general terms, but by detailing its specific activities; third, its organization for the handling of these activities; fourth, the character of its plant; fifth, a compilation of, or reference to, the laws and regulations governing its operations; sixth, financial statements showing its appropriations, expenditures and other data for a period of years; and finally, a full bibliography of the sources of information, official and private, bearing on the service and its operations.

In the preparation of these monographs the Institute has kept steadily in mind the aim to produce documents that will be of direct value and assistance in the administration of public affairs. To executive officials they offer valuable tools of administration. Through them, such officers can, with a minimum of effort, inform themselves regarding the details, not only of their own services, but of others with whose facilities, activities, and methods it is desirable that they should be familiar. Under present conditions services frequently engage in activities in ignorance of the fact that the work projected has already been done, or is in process of execution by other services. Many cases exist where one service could make effective use of the organization, plant or results of other serv-

ices had they knowledge that such facilities were in existence. With the constant shifting of directing personnel that takes place in the administrative branch of the national government, the existence of means by which incoming officials may thus readily secure information regarding their own and other services is a matter of great importance.

To members of Congress the monographs should prove of no less value. At present these officials are called upon to legislate and appropriate money for services concerning whose needs and real problems they can secure but imperfect information. That the possession by each member of a set of monographs, such as is here projected, prepared according to a uniform plan, will be a great aid to intelligent legislation and appropriation of funds can hardly be questioned.

To the public, finally, these monographs will give that knowledge of the organization and operations of their government which must be had if an enlightened public opinion is to be brought to bear upon the conduct of governmental affairs.

These studies are wholly descriptive in character. No attempt is made in them to subject the conditions described to criticism, nor to indicate features in respect to which changes might with advantage be made. Upon administrators themselves falls responsibility for making or proposing changes which will result in the improvement of methods of administration. The primary aim of outside agencies should be to emphasize this responsibility and facilitate its fulfillment.

While the monographs thus make no direct recommendations for improvement, they cannot fail greatly to stimulate efforts in that direction. Prepared as they are according to a uniform plan, and setting forth as they do the activities, plant, organization, personnel and laws governing the several services of the government, they will automatically, as it were, reveal, for example, the extent to which work in the same field is being performed by different services, and thus furnish the information that is essential to a consideration of the great question of the better distribution and coordination of activities among the several departments, establishments, and bureaus, and the elimination of duplications of plant, organization and work. Through them it will also be possible to subject any particular feature of the administrative work of the government to exhaustive study, to determine, for example, what facilities, in the way of laboratories and other plant and

equipment, exist for the prosecution of any line of work and where those facilities are located; or what work is being done in any field of administration or research, such as the promotion, protection and regulation of the maritime interests of the country, the planning and execution of works of an engineering character, or the collection, compilation and publication of statistical data, or what differences of practice prevail in respect to organization, classification, appointment, and promotion of personnel.

To recapitulate, the monographs will serve the double purpose of furnishing an essential tool for efficient legislation, administration and popular control, and of laying the basis for critical and constructive work on the part of those upon whom responsibility for such work primarily rests.

Whenever possible the language of official statements or reports has been employed, and it has not been practicable in all cases to make specific indication of the language so quoted.

CONTENTS

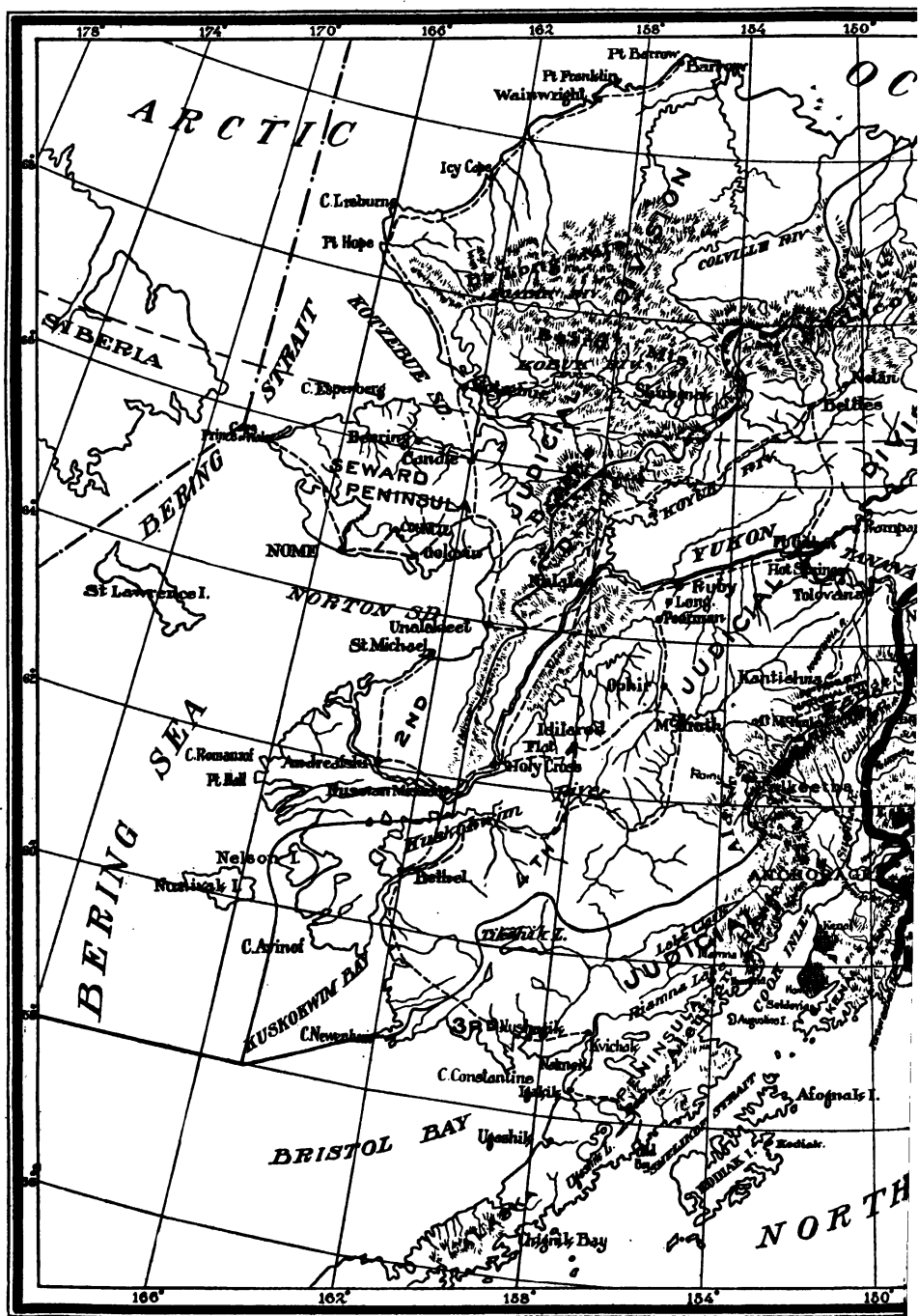
CHAPTER

PAGE

FOREWORD

I. HISTORY	I
The Railroad Situation in Alaska Prior to the Creation of the Commission	1
Period Prior to the Passage of the Act of 1898	2
Period of Private Construction, 1898-1908	5
Movement for Construction of a Government Railroad	9
The Commission	13
Period of the Survey	13
Initial Construction Period	18
Acquisition of Supplies and Equipment	18
Transportation of Supplies and Equipment	21
Distribution of Supplies and Equipment	22
Construction	23
Purchase of Alaska Northern Railroad	26
Development of Traffic	27
Period of War-Time Retardation of Construction	32
Post-War Period of Reorganization	34
Conclusion	37
Difficulties Due to Physical Causes	38
Difficulties Arising from Economic Consequences of the War	38
Fiscal Difficulties	39
Earning Possibilities of the Railroad	43
II. ACTIVITIES	45
Construction Activities	46
Terminal Facilities	47
Telephone and Telegraph Lines	47
Wagon Roads	48
Rehabilitation of Purchased Railroads	48
Operation	49
Operation of Railroad	49
Operation of Coal Mines	51
Operation of Docks	53
Operation of Power Plants	53
Operation of Other Services	54
Maintenance	54
Development of Traffic	55

CHAPTER	PAGE
III. ORGANIZATION	59
Administration	62
Divisions	63
Southern	63
Northern	64
Supply	65
Accounting	65
Purchasing	66
Personnel	66
APPENDIX	
1. Outline of Organization	67
2. Classification of Activities	76
3. Publications	79
4. Laws	81
(A) Index to Laws and Important Executive Orders and Letters	81
(B) Compilation of Laws	84
(C) Important Executive Orders and Letters	90
5. Financial Statements	97
Appropriations	98
Expenditures	98
6. Bibliography	99
Index	121





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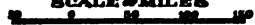
MAP OF ALASKA WITH ROUTE OF THE U.S. GOVERNMENT RAILROAD

The U.S. Government Railroad in Alaska is located through the heart of the Territory. It has for its southern terminus the town of Stewart, a port free from ice, and open the year round, situated on the rocky shore of Resurrection Bay, and connects with the navigable waters of the Interior, at the Towns of Nenana and Fairbanks, a total distance of 405.0 Miles, with branch lines to the Matanuska Coal Fields aggregating 40.4 Miles. In addition to the above a narrow gauge line extends from Happy Lake to Chatskanie through the Tanana Valley making district a distance of 31.8 Miles, constituting a total mileage over the U.S. Alaska Railroad of 558.2 Miles.

COMPILED FROM MAPS OF THE U.S. GEOLOGICAL SURVEY
THE U.S. POSTAL MAPS, AND FROM OTHER MAPS
GIVEN BY THE ALASKAN ENGINEERING COMMISSION.

1921.

SCALE OF MILES



LEGEND

- U.S. Railroad. ———
- Coal Fields. [shaded area]
- Mail Routes. - - - - -

APPROVED *F. Merris* CHAIRMAN.
ALASKAN ENGINEERING COMMISSION.

TO VIKI
ANGOTIAO

THE ALASKAN ENGINEERING COM- MISSION: ITS HISTORY, ACTIVITY, AND ORGANIZATION

CHAPTER I

HISTORY

The Alaskan Engineering Commission, an agency under the executive direction of the Secretary of the Interior, has been entrusted with the work of survey, location, construction, and operation of the government railroad in the territory of Alaska. It also has the direction of all the collateral and supplementary activities necessarily involved in an operation of such magnitude.

The Railroad Situation in Alaska Prior to the Creation of the Commission. The creation of the Alaskan Engineering Commission was the culmination of several years' discussion and agitation on the problem of the development of Alaskan resources through an adequate railroad system. In view of the almost limitless mineral wealth of this territory, its valuable fisheries and fur trade, and the uncharted possibilities in its arable and grazing lands and in lumbering, the failure of private initiative and capital to supply sufficient railroad facilities for exploitation of this region and the ultimate assumption of responsibility by the federal government requires exposition. The explanation lies in the peculiar railroad history of Alaska, which is therefore briefly outlined in the next few sections. Such a history naturally falls into three periods. The first period, extending in point of time from the beginning of civil government in 1885 to the act of

May 14, 1898, which first made provision for rights of way for railroads, was characterized by a transition from dependence upon water transportation to recognition of the necessity for railroads as an aid in the development of the territory. The second period, beginning with the enactment of the act of 1898, was the period of active construction and promotion of railroads through private initiative and capital. The third period, beginning with the failure of several of the roads in 1908, was characterized by cumulative evidence that under the established government policy of taxation of the pioneer railroads and of withholding coal lands from private exploitation, private capital would not be able to provide the railroad facilities required for the development of Alaska. In this period a growing demand for federal intervention culminated in the creation of the Alaskan Engineering Commission. Each of the above periods will be discussed briefly in the pages which follow.

Period Prior to Passage of the Act of 1898. In the first few years following the creation of a civil government for Alaska there is little evidence of a realization of the need of railroads either for general purposes of commerce or as an aid to the rapid development of the territory. Consideration of a railroad project for Alaska is indicated in the Congressional Record of March 17, 1886,¹ when a bill² was referred to the Committee on Foreign Relations "to facilitate the settlement and develop the resources of the Territory of Alaska, and open an overland and commercial route between the United States, Asiatic Russia and Japan." This bill was referred by the committee to the Department of the Interior for a report on the feasibility of the project. A report thereon was submitted by the Director of the Geological Survey under date of May 21, 1886, in which it was stated that "the information on record bearing on the question does not indicate any greater obstacles to the construction of such a line than

¹ Vol. 27, p. 2427, 49 cong. 2 sess., (1886).

² S. Bill 1907.

those already overcome in transcontinental railroad building and this being true the construction of the proposed line must be pronounced feasible. . . . The Director does not feel called upon to express any opinion as to the wisdom of constructing the railroad under consideration.”³ Nothing further appears in the records of Congress concerning this bill, and it may be inferred that it was permitted to die in committee. But though the introduction of this bill indicates realization in some quarters, even at this early date of the need of a railroad for Alaska, one so qualified to speak of the needs of the district as its Governor wrote in 1884 that “all travel and transportation in Alaska is and for years must continue to be by water.”⁴ This view was natural in contemplation of the physical features of Alaska whose—

southerly seaboard, presenting a front of over 2400 miles to the Pacific, abounds in good natural harbors, and all these, except the head of Cook Inlet, are ice free throughout the year. A series of high ranges skirting the Pacific, indeed, forms a serious barrier to inland travel, but these mountains are broken by several transverse valleys and passes, giving access to the interior. Beyond this mountain system is an area of lesser relief, a rolling upland with many broad valleys, offering no physical obstacles to lines of communication. This inland province is drained to the Bering Sea by the Great Yukon and Kuskokwim Rivers which with their tributaries afford some 5000 miles of water navigable to river steamers.⁵

It can be readily understood that with nature thus favoring water transportation, there could be but slow development of railroad transportation, particularly when the small population is considered. The total population in 1890 was but 31,795, of which only 4303 were whites, and this small number was scattered over an area one-fifth of the total area of the United States. Consequently, it is not surprising that “a steamship

³ 49 cong. 2 sess., S. Misc. doc. 22, p. 2.

⁴ Governor of Alaska, Annual report, 1884, p. 7.

⁵ Brooks, “The development of Alaska by government railroads,” *Quarterly Journal of Economics*, XXVIII, 586-96.

is to Alaska what the railroad train is to the people of the United States." ⁶ Even when the difficulties involved in the administration of so large an area brought the problem of more adequate transportation to the attention of the Governor, his perplexities in seeking to curb smuggling and "boot-legging" led only to a modest request, as late as in 1889, for a light draught vessel for the use of the civil government. ⁷ Even three years later it was reported that not only had no railroads been built but that none were even contemplated seriously. ⁸

The first real impetus to railroad construction came in the period following the discovery of gold in the Klondike in 1886. "The horde of gold seekers that swarmed through the passes of the coast range in 1897 and 1898 transported their supplies by sleds and on their backs. It is estimated that by this primitive means upward of 30,000 tons of freight were carried inland at a cost, allowing fair wages for the labor, of probably \$15,000,000 to \$16,000,000. About an equal amount of freight was sent to the interior by steamers up the Yukon." ⁹ In consequence of this gold rush, the census of 1900 reported a population of 63,592, of which 30,507 were whites. The population of Alaska was thus practically doubled in the decade of 1890-1900, while the white population in this decade increased seven fold. Another factor was the growth of knowledge of Alaska's resources and industrial possibilities, mainly as a result of governmental investigations, but also as an indirect result of the general public interest attending the discovery of gold in the Klondike. It was rapidly becoming clear at this time that aside from the long recognized wealth in the fur and mineral trade, there were remarkable potentialities in agriculture, herding, lumbering, etc.

As a consequence of these influences, requests were made of

⁶ Governor of Alaska, Annual report, 1885, p. 14.

⁷ *Ibid.*, 1889, p. 26.

⁸ *Ibid.*, 1891, p. 34.

⁹ Brooks, *supra*.

Congress in 1897 and 1898 by various promoting groups to grant franchises and rights of way for railroad projects.¹⁰ These special requests Congress refused, but it passed a general law aiming to provide for railroad building.¹¹ The enactment of this law marks the beginning of the period of railroad construction.¹²

Period of Private Construction, 1898-1908. The act of May 14, 1898, provided for the granting of a right of way and made due provision also for sufficient land for stations and terminals, as well as timber and stone for construction, to any railroad company "duly organized under the laws of any state or territory or by the Congress of the United States." Several companies, immediately after the passage of the act or in anticipation of its passage, made preliminary filings under the provisions of the law. In the brief period between September, 1897, and March, 1899, no less than eleven companies made filings for railroad routes totalling about 673 miles.¹³

Actual construction on the first railroad was begun in the summer of 1898 to furnish access to the Klondike gold fields, from tidewater at Skagway in Alaska to the navigable waters of the Yukon Basin at White Horse in Canada. By 1901, 110 miles of this narrow-gauge railroad had been constructed, of which however, only twenty miles were in Alaska. The cost of carriage over the passes was reduced by the building of this railroad from the rate of thirty cents to \$1 per pound,

¹⁰ House Committee on Territories, 60 cong, 1 sess., Railroads in Alaska, Hearings, p. 62.

¹¹ Act of May 14, 1898; 30 Stat. L., 409.

¹² Not only does the year 1898 mark the beginning of the period of railroad construction, but also the period of federal action in the wider sphere of Alaskan transportation development. The construction of a trail was begun in that year by the War Department from Fort Liscum at Valdez on the south coast northeastwardly through the Copper River Valley to Fort Egbert at Eagle on the Yukon River near the International boundary line. (See p. 101 House Hearings on the Construction of Alaska R.R. July, 1919).

¹³ As calculated from House Document 1201, 60 cong. 2 sess. Of this projected mileage only 233.4 miles was being operated or under construction on Dec. 5, 1908.

which had been the cost of carriage on men's backs, to 4¾ cents by rail. Yet in the face of this demonstration of reduced costs, there was no further significant construction for several years.¹⁴

The Governor of Alaska attributed this situation to the unfavorable land laws which provided no clear title to the occupier of land without an excessive expenditure. This factor, he alleged, prevented the immigration into the territory of any large permanent population, and consequently capital was slow to take the risks of pioneer railroad construction. "Their greatest obstacle," wrote the Governor in 1901, speaking of the difficulties facing railroad capitalists, "is their inability to encourage the people to move in and fill up the country as they build their road. . . . The people will not come until they can own the land and they cannot own it until Congress makes up its mind to allow them."¹⁵

This difficulty was removed in 1903 by the passage of a generous homestead law under the terms of which a homesteader could select a claim of 320 acres and by compliance with certain simple regulations as to lines, recording, etc., be assured of a patent for the land. Whether as a consequence of this liberalization of the homestead laws or of other factors, the precise determination of which is not pertinent here, there was renewed activity in railroad construction in the following years. The optimism at this time is well illustrated by the following quotation from an address by the President of the Alaska Central Railway Company to the stockholders in September, 1903:

I am free to say that in all my railroad experience, covering a period of thirty years, I have never known a railroad of corresponding length to tap a country supplied with such a diversity and abundance of natural resources as that to be opened by that Alaska Central Railway. . . . I am convinced that the extraordinary earning powers of the road will enable

¹⁴ Governor of Alaska, Annual Report 1901, p. 34.

¹⁵ *Ibid.*, 1902, p. 16.

it to bear all fixed charges and pay large dividends on both the preferred and common stock.¹⁶

So noticeable was the progress of railroad construction at this time that the Governor of Alaska turned from his former desire to encourage new enterprise to anxiety over the problem of regulation of existing enterprises, and asked in his annual report to the Secretary of the Interior: "Will it be a wise public policy in view of the serious questions that are now connected with railway carrying, to allow these corporations to construct these lines of road across the public domain without any restriction whatever?"¹⁷

While there was this activity in railroad construction from 1903 to 1907, hearings were being held at intervals in Washington at the request of various promoting companies for governmental aid in their railroad projects for Alaska, either in the form of relief from federal taxation, governmental subsidies, exclusive grants and rights, or a guarantee of interest on the bonds of the companies. In these proposals may be detected the germ of the later proposals for federal construction. Although nothing was done at this time by Congress, the hearings¹⁸ served to bring to public attention the various factors which were making successful private building and operation of railroads difficult in Alaska. There were the usual general charges of bad management, excessive promotion, unsound policies, and waste of funds. More specific allegations were to the effect that there had been many costly errors due to engineers' differences of opinion as to the most feasible routes, and that much delay in construction had followed controversies between rival railroad companies over their respective rights of way.

¹⁶ President of the Alaska Central Railway Co., Annual report, Seattle, Sept. 29, 1903, p. 2.

¹⁷ Governor, Annual report, 1905, p. 26.

¹⁸ House Committee on Territories, Railroads in Alaska, Hearings, 59 Cong., 1 sess., 1906; Senate Committee on Territories, Railroad and Telegraph and Telephone Lines in Alaska, Hearings 1907; also House Committee on Territories, Railroad Transportation in Alaska, Hearing of the Western Alaska Construction Co., March 11, 1904.

It was pointed out, however, that the greatest handicap to railroad development in Alaska lay in the general misunderstanding in the states of conditions in the territory, so that the successful negotiation of securities was difficult if not, at times, impossible. Often it was necessary to sell the securities on a basis of a considerable discount, thus imposing an excessive initial indebtedness on the enterprises. One company spent a considerable sum in advertising and publicity; its representative stating before the House Committee on Territories in 1905:

When the Valdez, Copper River and Yukon Railroad Company attempted to negotiate its securities it found that nobody knew anything about Alaska. They all supposed it was a place almost of solid snow and ice, and therefore, in the East especially, nobody would take notice of any proposition. The Valdez, Copper River and Yukon Railroad Company went on and spent nearly \$40,000 in photographing that country. . . . We found no interest in this subject anywhere in the United States and the result was that we paid agents and solicitors to go before Chambers of Commerce and Boards of Trades throughout the United States, and I believe we succeeded in getting passed in the various centers of trade throughout the United States something like two hundred petitions and resolutions addressed to Congress imploring Congress to do something for the people of Alaska. All that cost a great deal of money.¹⁹

It has been pointed out also ²⁰ that the federal annual railroad tax of \$100 a mile, though much less than the lowest tax in the states, was still a serious problem for pioneer lines with heavy expenses and light traffic. Moreover, most of the railroads which were in operation were but stubs that did not reach the possible sources of traffic.

As a consequence of all these difficulties, several of the railroad companies were in a vulnerable position when the panic of 1907 came. The Alaska Central Railroad went into

¹⁹ House Committee on Territories, Hearings, 1905, p. 29.

²⁰ Brooks, *supra*.

the hands of a receiver in 1908²¹ and the Alaska Home Railway suspended work. A few years later it was reported²² that none of the existing lines were earning interest charges, while some were not even paying operating charges. Yet it must be remembered that rates were already almost prohibitively high. In 1909 the per capita transportation charge for every inhabitant in the placer districts of Alaska was estimated at \$350 and the total charge was equal to approximately half the value of the entire gold output of the year.²³ Any further construction by private enterprise and capital to develop the interior resources of Alaska without some subsidy or guarantee by the government was therefore beyond the range of possibility.

Movement for Construction of a Government Railroad. The year 1908 may be taken as marking the first year of this period, since it was then that the Governor of Alaska urged the appointment of a government commission to study available routes for a railroad from the coast to the interior, part of the cost of operation of which was to be assumed by the government.²⁴

After this date the movement for federal assistance gathered momentum until the mere probability of its success was in itself sufficient to discourage new construction by private companies.²⁵ The lack of definite federal policy concerning the

²¹ The Alaska Central resumed construction under a receivership in 1909 only to be sold by order of the district court in 1910.

²² Governor of Alaska, Annual report, 1912, p. 22.

²³ Brooks, The mining industry (Alaska) 1909. U. S. Geological Survey Bulletin 442, pp. 26-7 (1910).

²⁴ Federal action on the general transportation development of Alaska began much earlier. The construction of a trail was begun by the War Department in 1898 from Fort Liscum at Valdez to Fort Egbert at Eagle (see footnote 12). In 1902 a wagon route was surveyed over this route and in 1904, following the recommendation of a Congressional delegation which visited Alaska in 1903, the appointment of the Alaska Road Commission was authorized. In 1906 survey of a land route was authorized from Fairbanks to Council City. These surveys made by the Alaska Road Commission were anticipatory of later trans-Alaska railroads.

²⁵ House Committee on Territories, Hearings on Alaska Short Line R. R. in Alaska, April 1, 1910.

disposition of the public domain and coal lands of Alaska also began to have an unfortunate effect upon such new construction as might have been contemplated and was, moreover, a tremendous handicap upon the railroads which were then in operation because of the difficulty of obtaining coal from local sources.

The railroad problem became thus entangled with the general conservation controversy. The outcome was the realization that private capital would not build adequate transportation facilities to the interior of Alaska unless the coal mines and mineral deposits were opened for private exploitation and that, consequently, if conservation for the nation of this coal and mineral wealth were desired, the government itself would be obliged to construct the necessary means of transportation.

Several bills were introduced in the sixty-second Congress to solve these problems; also a bill to provide a territorial legislature for Alaska. The final result was the passage of "an act to create a legislative assembly in the Territory of Alaska, to confer legislative powers thereon and for other purposes,"²⁶ the eighth section of which provided for the appointment of a commission by the President to conduct an examination into the transportation question in the Territory of Alaska as recommended in 1908 and 1909 by the Governor of Alaska.

In accordance with this act, President Taft appointed the following commission: Maj. Jay J. Morrow, Corps of Engineers, United States Army, Chairman; Alfred H. Brooks, Geologist in charge of Division of Alaskan Mineral Resources, Geological Survey, vice chairman; Leonard M. Cox, Civil Engineer, U. S. Navy; and Colvin M. Ingersoll, consulting railroad engineer, New York.

The report of this commission, which was submitted to the President on January 20, 1913, may be summarized as follows:²⁷

²⁶ Act of August, 24, 1912 (37 Stat. L., 517).

²⁷ 62 cong. 3 sess., H. Doc. 1346. p. 8 et seq.

1. That railway connections with open ports on the Pacific were necessary for utilization of the fertile regions of the Alaskan interior and the mineral resources and to open up a large region to the homesteader, the prospector, and the miner.

2. That construction of two independent railroad systems was advisable to be ultimately connected and supplemented as future conditions made necessary, one to run from Cordova by way of Chitina to Fairbanks and the other from Seward around Cook Inlet to the Iditarod River, with a total cost of \$35,000,000 for the 733 miles of new construction involved.

3. That "assuming the necessity of earning 6 per cent. on the capital invested the road could be operated without loss on the estimated available traffic, at a passenger rate of seven cents per mile and an average freight rate of eight cents per ton-mile."

4. That "an average freight rate exceeding 5 cents per ton-mile and passenger rate in excess of 6 cents per mile would defeat the immediate object of the railroad, namely, the expeditious development of the interior of Alaska and, furthermore, would introduce the question as to whether or not the Seattle-Cordova-Fairbanks freight route would be able to compete with the present all-water route via the Yukon River system, except on shipments in which the time element is of such importance as to warrant the payment of a higher freight rate."

5. That the annual expenditures of the road could be reduced materially if capital could be secured at the lower rates of interest obtainable under a government guaranty of principal and interest on bonded indebtedness or if the road were constructed by the government itself.

6. That although this railroad development "should be undertaken at once and prosecuted with vigor," the project was not feasible without some plan which would provide for low transportation rates and the "consequent rapid settlement of this new land and the utilization of its great resources."

This report was sent to Congress on February 6, 1913, by President Taft with his opinion that "the necessary inference from the entire report is that in the judgment of the commission its recommendations can certainly be carried out only if the Government builds or guarantees the construction cost of the railroads recommended. If the government is to guarantee

the principal and interest of the construction bonds, it seems clear that it should own the roads, the cost of which it really pays. This is true whether the government itself should operate the roads or should provide for their operation by lease or operating agreement. I am very much opposed to government operation, but I believe that government ownership with private operation under lease is the proper solution of the difficulties here presented. I urge the prompt and earnest consideration of this report and its recommendations." ²⁸

Subsequently several bills were introduced in Congress to carry out the recommendation of the commission, and a bill was passed entitled "An Act to authorize the President of the United States to locate, construct, and operate railroads in the Territory of Alaska and for other purposes" which was approved March 12, 1914.²⁹ (38 Stat. L., 305). The President was given full authority to designate, locate, and construct the routes of the proposed lines of railroad and the necessary telephone and telegraph lines; to purchase or otherwise acquire all real and personal property, terminal grounds, right of way, equipment, etc., which were essential to carry out the purpose of the act; to fix or modify rates; to establish all necessary rules and regulations; and in general to perform all things incidental to the success of the undertaking. The only important limitations upon the President were that the road was not to exceed one thousand miles in the aggregate, that it was to be so located as to connect one or more of the open Pacific Ocean harbors on the southern coast of Alaska with the interior navigable waters and with the coal fields, and that the total expenditure was not to exceed \$35,000,000. The sum of \$1,000,000 was appropriated to be immediately available for carrying out the provisions of the act.

On May 2, 1914, the President directed the Secretary of the Interior to proceed with the surveying of the routes for the

²⁸ *Ibid.*, p. 11.

²⁹ See Appendix 4 for text of this bill.

railroad, and conferred upon him "the power and authority to do any and all acts necessary thereto." For the immediate direction of the work, a commission, designated the Alaskan Engineering Commission was created by Presidential appointment composed of Lieutenant Frederick Mears, "because of his experience as an engineer on the Great Northern under Mr. J. F. Stevens, and later in the construction of the Panama Railroad under Col. Goethals," Thomas Riggs, Jr., "because he had spent many years in Alaska and surveyed the Alaskan-Canadian boundary from the sea to the Arctic Ocean and was familiar with the Alaskan people and conditions under which work can be done in Alaska," and W. C. Edes, "because of over 35 years' experience in locating and constructing railroads in the far West for the Santa Fe, Southern Pacific, and other railroad companies."³⁰ Formal authorization to begin work was received by this commission from the Secretary of the Interior on May 8, 1914.³¹

The Commission. The history of the commission falls into four periods: the period of the survey; the initial period of construction; the period of war time retardation of construction; and the post war period of reorganization and full resumption of activities.

Period of the Survey. As indicated above, the Secretary of the Interior formally authorized the commission to proceed with its work on May 8, 1914. In general terms, the first problem then facing the commission was "to make such surveys³² and compile such data as would enable the President to decide on the most available route over which to build the railroad."

The commission found at the beginning of its work that

In order to accomplish the objects set forth in the act of Congress it was necessary to investigate two general routes

³⁰ House Committee on Territories, Bills, Reports, Hearings and Acts Alaska, 1921, p. 205.

³¹ See Appendix 5 for letter of authorization.

³² The surveys which had been made by the Railway Commission were not in sufficient detail for the purposes of construction,

from the coast to the interior of Alaska, namely, the eastern route starting from Cordova or Valdez and extending northward via the Copper River, Tonsina River, Delta River, and Tanana Valley to the vicinity of Fairbanks, and the western route, starting from Portage Bay or Seward and following along the shores of Turnagain and Knik Arms, thence northward through the Susitna Valley and over Broad Pass and down the Nenana River to its junction with the Tanana, and thence by one of several routes to the vicinity of Fairbanks.⁸⁸

Since considerable information was already available on the eastern route there was planned a careful preliminary survey and estimate of the western route, including a branch therefrom to the Matanuska coal fields; a survey from Chitina on the eastern route to these coal fields; and a reconnaissance from the western route into the Kuskowim and Iditarod districts which had never been gone over in anticipation of railroad construction. Supplementing the work of the locating and surveying parties whose investigations were first hand, an analysis was made of previous surveys of the routes or portions of them and modifications were made in accordance with the best knowledge then obtainable. At times there was conflicting testimony on important matters, and the commission then made arrangements for observation and verification by its own representatives. Consequently through surveys of its own men and through judicious use of former investigations, the commission was enabled to compile in a relatively short time the facts as to the advantages and disadvantages of alternative routes.

The act of March 12, 1914, authorized the President

To purchase, condemn, or otherwise acquire upon such terms as he may deem proper any other line or lines of railroad in Alaska which may be necessary to complete the construction of the line or lines of railroad designated or located by him: *Provided*, That the price to be paid in case of purchase shall

⁸⁸ Alaskan Engineering Commission, Reports for period March 12, 1914 to Dec. 31, 1915, p. 11.

in no case exceed the actual physical value of the railroad.

To supply the President with the data necessary to carry out the provisions of this clause, the commission examined the following three railroads:

	Miles
Copper River and Northwestern Railroad:	
Cordova to Kennicott (standard gauge) . . .	195.0
Alaska Northern Railroad:	
Seward to Kern Creek, a point near the head of	
Turnagain Arm (standard gauge)	70.8
Tanana Valley Railroad:	
Fairbanks and Chena to Chatanika (narrow gauge)	46.0

In the case of the Copper River and Northwestern Railroad, which was the most active standard-gauge railroad in Alaska, an examination was made of its entire length. Investigation was made of the grades, curvature, bridges, cost of operation, etc. It was found that while, in general, a workable railroad existed, betterments were essential, not only in anticipation of any increased future traffic but also to reduce the cost of operation and maintenance even under existing traffic. It was noted that if economies in operation and maintenance were thus introduced, the handicap on earning power could be removed of the abnormally high rates of $12\frac{1}{2}$ cents per passenger mile and from $3\frac{1}{2}$ to $14\frac{1}{2}$ cents per ton mile as against prevailing rates in the United States of two to four cents per passenger mile and one cent per ton mile.

The commission found the condition of the Alaska Northern Railroad much worse than that of the Copper River and Northwestern. It was estimated that to make possible the safe operation of only light trains from Seward to Kern Creek, an immediate expenditure of \$500,000 would be required, excluding the necessary outlay for snowsheds, determination of which awaited further study of snow conditions.

In regard to the Tanana Valley Railroad, which was a narrow-gauge single track steam railroad, the commission found that it had suffered a reduction in earnings as the mining industry had decreased, but increased traffic could be anticipated if coal were to be delivered to it from the Nenana

fields. Even, however, with the existing traffic, the net earnings were more than \$22,000 annually. As to the physical condition of the road, it was found that the equipment was in poor condition and that no heavy grading had been undertaken in the original construction.

It was also necessary to obtain some estimate of the traffic possibilities on the proposed routes for the government railroad. An independent investigation into the resources of the tributary country was not only obviously beyond the range of possibility with the limited time and means at hand, but also undesirable if considerable duplication of effort was to be avoided. Personal observation of the members of the commission was, therefore, supplemented "by examination of reports of the various government bureaus, data compiled by chambers of commerce, and statistics furnished by existing transportation companies."⁸⁴ It was found that not only was there considerable traffic by water, much of which could be more cheaply handled by such railroads as were then contemplated but that the creation of cheaper transportation facilities would itself, in all probability, call a large volume of tonnage into existence.

Since there had been considerable difference of opinion as to the relative merits of various harbors, the members of the commission visited all the harbors under consideration and supplemented their own observations with the information available from the investigations of the Railroad Commission of 1913, the U. S. Coast and Geodetic Survey, Alaskan commercial bodies, and other services. Master mariners were also consulted. It was concluded from the investigation thus made that "at any of the harbors considered suitable terminal facilities can be created without excessive cost, and that the question of the most available route for the railroad system to best develop the resources of Alaska is not dependable on the selection of any particular harbor."⁸⁵

⁸⁴ *Ibid.*, p. 62.

⁸⁵ *Ibid.*, p. 76.

After these examinations and investigations had been completed, estimates of cost were prepared based on the information obtained from the field surveys, and an evaluation of the Alaska Northern Railroad was made in anticipation of its possible purchase by the government. On February 11, 1915, the report of the commission's findings was transmitted to the President. No recommendation was made as to the best route to follow, because

this commission is essentially an engineering one, organized to handle the subject along technical lines. In selecting a route other questions besides strictly engineering ones are to be considered. The commission has understood that their especial mission was to collect the evidence and present it in as impartial a form as possible, knowing it would be weighed carefully and acted upon wisely.⁸⁶

On April 10, 1915, about two months after the report had been submitted, the President issued an Executive Order⁸⁷ outlining the route which he had selected and directing the Secretary of the Interior to purchase the Alaska Northern Railroad. The order was accompanied by a letter⁸⁸ directing the Alaskan Engineering Commission to proceed with the work of construction of the railroad as located in the Executive Order under the supervision of the Secretary of the Interior, upon whom was conferred "full power and authority to do any and all acts necessary thereto." One member of the commission was to be designated by the Secretary as its chairman to have "power of approval or disapproval of all administrative matters connected with the work in Alaska."

There was apparently some doubt as to the exact division of authority and responsibility as between the Secretary of the Interior and the commission, for on April 30, 1915, a letter from the President provided that

all work of the Alaskan Engineering Commission under all

⁸⁶ *Ibid.*, p. 83.

⁸⁷ Executive Order of April 10, 1915. (See Appendix 5).

⁸⁸ See Appendix 5.

orders made by me and the carrying out of all contracts entered into by my direction under authority of said act, be performed under the supervision and control of the Department of the Interior, as directed by the head thereof, in all respects and to all intents and purposes the same as if said work had been placed by law under the jurisdiction and control of the Department of the Interior.

Initial Construction Period. Following the above authorization and directions of the President, the commission prepared itself for the actual work of construction. William C. Edes was made Chairman, with headquarters at Seward where it was decided to locate the administrative offices; Frederick Mears was placed in charge of construction of new line, to begin at a point where Ship Creek enters Knik Arm of Cook Inlet, a locality later known as Anchorage; and the third commissioner, Mr. Riggs, took charge of the final detailed location of the line, since the general surveys made in 1914 had been aimed merely to supply a basis for the President's decision as to the best general route and were not suitable for actual construction.

The railroad was to be constructed in a wilderness, so that it was necessary to develop and carry various agencies along with the actual road construction. It was found essential to the project to build ocean docks, towns and camps, machine shops, supply terminals, etc. Railroad rolling stock, construction equipment, and supplies of all sorts had to be transported 1500 to 2500 miles from Seattle, which was the nearest Pacific coast port.

Acquisition of Supplies and Equipment. Under the terms of the act of March 12, 1914, and President Wilson's letter of authorization of April 10, 1915, the commission was to derive its supplies and equipment for its undertaking in three ways; by transfer from the Panama Canal, by utilization of such materials as were available along the right of way and in the reservation lands, and by ordinary purchase.

In order to make arrangements for assembling and shipping available equipment from Panama, a representative of the

commission was sent to the Isthmus in March, 1915. By mid-summer such material and machinery had been overhauled and shipped in chartered vessels from the Canal Zone to Alaska. The commission was not charged for this equipment, but it bore the expense of repairing and freight, which arrangement resulted in a saving of from 50 to 60 per cent over the cost of new equipment.

To provide for purchase of supplies, in accordance with the law, a purchasing office was established at Seattle. In 1917 branch offices were established at Portland, Oregon, and San Francisco aiming at an extension of the sphere of competition for supplying the requisite supplies and a consequent reduction in costs.

In addition to purchasing the equipment and materials, the purchasing office arranged for transportation by rail and water except for a single year when a separate agency was created for this and other purposes, described in the next paragraph. Inspection of materials purchased was done under contract with the commission by a commercial concern. The cost of inspection was .91 of one per cent of the invoice price of the materials purchased in 1916 and 1.12 per cent in '917.

To lower the cost of inspection, to meet the difficulties of transportation, and also to relieve the purchasing office, the office of Engineering Representative was established in Seattle in 1917 to attend to the following matters:

To examine equipment and material to be applied on the railroad.

To attend to various technical matters, such as the preparation of standard specifications for track fittings, frogs, switches, etc.

To employ technical men and labor for Alaskan service.

To charter vessels and barges for transportation of supplies to Alaska and to supervise the transportation itself.

With the diminution of activity in 1918, the office of Engineering Representative was abolished on June 1, and all its activities transferred back to the General Purchasing Agent. The work accomplished by this office for the brief period of its existence is described in the section on transportation. There was no other change made in the purchasing office thereafter, even in the reorganization of November, 1919.

From the third source of supply, material along the right of way and in reservation lands, coal, and wood were obtained. Various timber reservations were made in order to retain control of timber suitable for railroad construction. The field service of the General Land Office worked in cooperation with the commission in handling this reservation timber. At first, wood was obtained only for piling and culvert timbers and for ties, while lumber for general building purposes and for bridge construction was imported from Puget Sound. Gradually, however, as saw mills were erected along the route, lumber for snowsheds and other structures became available. Coal was first obtained for the commission's use in the summer of 1916, when a small mine, located at a point one-half mile from the Matanuska branch of the railroad at Moose Creek, was opened. A contract was entered into for 2000 tons of coal at \$6. per ton. Before this mine was opened, the commission was paying about \$16 per ton for coal from Puget Sound.

Sufficient coal was produced at this time to meet the needs of the commission and the town of Anchorage for the summer and fall of that year. In April 1917 a mine operator who had been granted a coal leasing unit at Eska Creek³⁹ ran into serious faults in the mine and the production became less than thirty tons per day. The annual requirement of the commission was then about 40,000 tons and, since neither the operator nor his associates had sufficient funds to develop the mine with the obstacles being encountered, the commis-

³⁹ Under the Alaskan Coal Land Law (33 Stat. L., 525).

sion paid \$15,650 for the improvements that had been made and began operation of the mine on June 18, 1917. A total of 18,198 tons were produced during the year, 6000 tons of which were mined prior to June 18 under private operation.

Transportation of Supplies and Equipment. Because of the long haul involved, the transportation to Alaska of supplies and equipment, most of which was purchased in the states, became an important problem even at the beginning of the construction project, but the demoralization of the world's shipping facilities which followed the outbreak of the World War caused special difficulties. The importance of this factor in the cost of construction is shown by the fact that of all expenditures made by the commission up to April 1, 1920, one-eighth was for transportation costs from Seattle to Alaska.

As already indicated, all matters relating to transportation were handled by the Seattle Purchasing Office except for the brief period when the office of "Engineering Representative" was in existence. For handling all freight and passengers arriving by steamers, a receiving and forwarding department was established in the Anchorage Division. In anticipation of a congestion of freight on the ordinary commercial ships which would follow the demand for tonnage by the railroad construction project, arrangements were made with the War Department in 1916 to repair and operate the transport *Crook* from Seattle to Anchorage at the expense of the commission. Since commercial rates for water carriage were advancing rapidly owing to war demands for tonnage, the saving which resulted from the utilization of this army transport was reported "more than sufficient to meet the cost of operating the vessel, plus the cost of extensive repairs which it was necessary for the Commission to incur to place the *Crook* in commission." The transportation facilities thus made available were supplemented by a seagoing tug and barge, operated between Seattle and Anchorage via the inside passage; a collier placed at the disposal of the commission by

the Navy Department to carry a cargo of rails, and several chartered commercial vessels.

It was found that dependence upon commercial steamers placed the commission practically at the mercy of the steamship companies in matters of delivery and cost. Accordingly, in 1917, the office of Engineering Representative at Seattle, to which was assigned the duties previously under the jurisdiction of the Purchasing Office of chartering of vessels and barges and the general supervision of transportation itself, attempted both to lower costs and to expedite delivery. Arrangements were made for specially chartered barges at less than commercial rates, and a special tariff agreement was made with the White Pass and Yukon Railroad providing for transportation at 60 per cent of the regular rates. Consequently, out of a total of 70,000 tons of supplies shipped during the year, only about 11,000 tons went by commercial steamers at commercial rates.

Distribution of Supplies and Equipment. The method in which supplies and equipment were distributed to the zones of operation under the peculiar conditions obtaining in Alaska merits some attention.

Before leaving Seattle in April, 1915, the commission spent about \$40,000 in the purchase and shipment of equipment, material, and supplies essential for initiating construction. To provide for transferring this cargo to the shore at Anchorage a 1000-ton barge and three lighters were purchased at Seattle for delivery at Anchorage as well as material for a 200-ton barge which was to be put together there. No wharf could be constructed at which deep draft steamers could dock until the channel was dredged. To meet this difficulty ⁴⁰

A very serviceable dock was constructed on the north bank of Ship Creek near the mouth. In front of the dock was constructed a "grid-iron," over which the barges were floated at

⁴⁰ Alaskan Engineering Commission, Report for the period from March 12, 1914, to December 31, 1915, p. 185 (Printed as H. Doc. 610, 64 cong. 1 sess.).

high tide and on which they safely rested at low tide, thus avoiding any difficulty in unloading. A 15-ton derrick, operated by hoisting engine, was equipped for unloading the barges.

Several towboats which had been employed in the engineering survey of the previous year were also utilized as well as some gasoline boats belonging to private individuals in order that the heavy demurrage charges of the ocean steamers might be avoided. After the first shipload of supplies and material had been unloaded a large warehouse was constructed at the dock for storage of commissary supplies and a track was laid from the dock to a storage yard, a half mile distant, to which point lumber and construction material were taken. Some flat cars were taken from the stock of the Alaska Northern Railroad at Seward and brought by steamer to Anchorage for the handling of construction material.

As soon as work began on the line from Anchorage, supply camps were established at various points along the line, supplied by barges working on Knik Arm and by freight teams. Bridges were not erected till they were reached by the newly constructed railroad track to avoid the expense of hauling the necessary material by teams, but the bridge timbers were hauled by construction trains to the various sites. In 1916 large quantities of material, equipment, and supplies were distributed ahead, over the uncompleted work. Transportation facilities provided by the ice of rivers and snow roads over frozen swamp lands made this distribution comparatively easy and cheap in some regions. In others distribution was a greater problem and required special labor and cost. For example, for use on the Susitna River above Croto, a special type of boat called a "river tunnel boat" was designed to meet the difficulties due to many gravel bars and low water.

Construction. In the construction of the railroad, there were two general classes of work: the first, including the clearing of right of way, grubbing, grading, excavation, etc., comprising a kind of labor that could be standardized

and for which unit prices could be established; and the second, covering the building of bridges, laying of tracks, building of snowsheds, etc., where no such standardization was possible. The greatest portion of the first type of work was let out to "station men" under a system described by the commission in the following language:

A number of men associate themselves together as partners, taking short pieces of work at a certain price per cubic yard for grading, or per acre for clearing or grubbing. Each man signs the contract for doing the work and becomes equally interested in it as a copartner or small contractor. Each man receives his separate check for doing his portion of the work. The amount received depending upon the amount of work done, the men are spurred to exert their best efforts. Scarcely any capital is necessary to take a station contract, as the commission furnishes the necessary equipment at a moderate rental.

The advantage of this method as compared with the letting of the work to large contractors was two-fold. First, there was the saving in the profit of the large contractor, who would have taken, as it turned out later, a percentage on the rapidly increasing costs of labor and material during the period of inflation; second, there was an incentive to the men to exert their best efforts, since wages were in proportion to performances.

The contract with the station men stipulated that the work undertaken be executed "in the most substantial and workmanlike manner . . . under and in strict accordance with the adopted standard specifications and directions of the engineer for the Alaskan Engineering Commission." It was also provided that additional partners might be taken in if it was to the interest of the project to do so. Whenever the commission deemed it necessary, station men were authorized to hire laborers at a rate of pay "in accordance with the standard schedule of wages adopted by the commission." A three-fold classification of the material removed in the grad-

ing—solid rock, loose rock, and common excavation—was made, and a unit price was established for each class. Standards and unit prices were established also for clearing of the right of way. Clearing Right of way began at Anchorage in May, 1915, and by the end of the year track had been laid for $13\frac{1}{4}$ miles, grading completed for thirty-five miles, and the right of way cleared for forty miles, 712 acres. Certain projects ancillary to so large a construction enterprise in pioneer country were of necessity undertaken, such as the construction of a freight yard at Anchorage, the erection of a temporary telephone line, establishment of adequate lighterage facilities, a self-supporting commissary for employees, adequate housing facilities, medical service, etc.

In 1916 the commission began to feel some of the indirect effects of the European War, in advancing ocean freight rates, scarcity of shipping tonnage, rising prices for materials and labor, and labor disturbances. In spite of these obstacles, considerable progress was reported. Sixty miles of main line track were laid, one hundred were graded, and the right of way was cleared for 230 miles. The work in the Anchorage Division was subdivided into three construction districts, the Matanuska, Turnagain Arm, and Talkeetna districts, each under a district engineer. A terminal district was organized in the Anchorage Division to attend to the operation⁴¹ and maintenance of newly completed line out from Anchorage and the construction of terminal facilities. Work was also begun in June at the northerly end of the line from Fairbanks south.⁴²

In 1917 the Seward Division was created, to carry out the work of rehabilitation and operation of the Alaska Northern

⁴¹ Details as to operation of newly constructed road and the rehabilitation and operation of the Tanana Valley and Alaska Northern Railroad are given in Chapter II.

⁴² Although the initiation of work at this date necessitated considerable additional cost because supplies had to be brought over the long route from Seattle to St. Michaels, it was deemed advisable to begin then to relieve the fuel situation in Fairbanks. Development of this town and the region surrounding it was being restricted by scarcity of fuel.

Railroad as well as the construction of $8\frac{1}{2}$ miles of new track. By the end of the year 174.88 miles of standard-gauge track and 26.5 miles of sidings, spurs, and yard tracks had been laid. In addition there were 76.8 miles of the line graded and 70.8 miles cleared but not graded.

Purchase of Alaska Northern Railroad. A problem somewhat distinct from the general construction program was the purchase, rehabilitation, and operation of the Alaska Northern railroad. The act of March 12, 1914, required that the government railroad terminate on an ice-free harbor on the south coast of Alaska. It was necessary, therefore, to start at the town of Seward, located at the head of Resurrection Bay. Since the Alaska Northern in general followed the most feasible route toward the interior, only two courses were open; the purchase of this railroad or the construction of a new line paralleling the old. A careful field physical evaluation by the commission, described above, verified by the experts of the Interstate Commerce Commission, demonstrated that the price requested by the private owners of the Alaska Northern was not in excess of its value. It was, therefore, considered the wiser policy to purchase. Once having made this decision, the commission deemed it better to negotiate with the owners and agree on a reasonable price than to enter into condemnation proceedings.

The investigation of the commission demonstrated that the Alaska Northern Railway had cost the original owners and builders \$5,250,000. The Interstate Commerce Commission reported a total investment in road and equipment of \$3,616,800.81 to June 30, 1912. The purchase price of \$1,157,339.49 was slightly below the actual physical value of the property as estimated by the engineers of the commission and as certified to by the valuation experts of the Interstate Commerce Commission. The commission acquired not only the terminals and physical properties of the railroad, but also—a very considerable value in the work which had been done by the former Alaska Northern Railway Co. at various points

along Turnagain Arm and by having the benefit of the studies, maps, and profiles which they had prepared as a result of their field surveys from Seward to Fairbanks over the entire present adopted route of the Government railroad and of the Matanuska Branch line.⁴³

An initial installment of \$500,000 and interest was paid on August 25, 1915, when litigation over the title had ceased, and the final payment of \$650,000 was made on June 30, 1916; on which date the government came into full possession.

Development of Traffic. Not only in anticipation of the final completion of the railroad but also to provide a progressively increasing revenue for the various sections of the road as they were successively put into operation during the period of construction, it was deemed necessary to adopt measures which would create and foster traffic. This was attempted at first through three general lines of activity: first, through establishment of towns at intervals along the line;⁴⁴ second, through dissemination to the general public and especially to prospective settlers of information on the natural resources and land and mineral laws of the country tributary to the railroad and the progress of railroad construction, and third, through effecting coöperation between the merchants, miners, and farmers of the territory. To attend to these matters the Land and Industrial Department of the commission was created in April, 1916.⁴⁵

On April 12, 1917, the manager of this department was designated "the authorized representative of the lessor [the

⁴³ House Committee on Territories, Hearings on H. R. 7417, 1919, p. 193.

⁴⁴ These towns were established not only to encourage traffic but also to provide proper sanitary and moral protection for the employees during the period of construction. This activity may be considered both an institutional and a functional one.

⁴⁵ In the reorganization of Nov., 1919, jurisdiction over the country tributary to the Northern Division was placed directly under the Engineer in Charge of that division, the activities of the Land and Industrial Department being thereafter confined to the Southern Division.

Federal Government] in general administration of the coal land leases," to supervise mining operations and perform other functions imposed by law, regulations, or leases, upon the local representative of the Department of Interior in Alaska. The commission was interested primarily in the administration of these coal land leases only in so far as a promise of coal tonnage for the railroad was involved. Other matters connected with the operation of the mines were assigned to other services. Thus the Bureau of Mines was directed to cooperate with the Land and Industrial Department of the Alaskan Engineering Commission in the working of the mines so that the mining operations would be conducted with due regard to the preservation of property, prevention of undue waste, and safety and welfare of miners, while the General Land Office was to have jurisdiction over surveys, the notation, assignment, cancellation, or modification of leases, and all matters pertaining to the status of lands. All rents and royalties were payable to the local land office.

As a consequence of the above major lines of activity of the Land and Industrial Department, several secondary activities either developed automatically or were superimposed upon it by the commission. First, to make possible the dissemination of information on the general development and resources of the territory, the department gathered the available data through both primary and secondary investigations, the net product of which was a section in the annual report of the commission dealing with the agricultural and economic progress of the country tapped by the railroad. Second, in consequence of its familiarity with economic conditions in this territory, the Land and Industrial Department was enabled to make recommendation to the commission as to the desirability of proposed legislation and as to necessary federal legislation or federal assistance in various directions. Third, since the establishment of townsites necessarily included "inter alia" control of matters relating to withdrawal of lands for railroad and public purposes and the leasing of

lands under commission control for industrial and other purposes, the transition was easy to a general assignment to the department by the commission of all matters relating to land and real estate owned or controlled by the commission.⁴⁶

It would be valueless to describe in detail all these phases of the commission's work, most of which are self-explanatory. Attention is only directed, therefore, to the appraisal and sale of lots and town management, matters which require some degree of clarification.

By the Alaskan Railroad Act of March 12, 1914, the President was authorized to withdraw, locate, and dispose of, under such rules and regulations as he might prescribe, such area or areas of the public domain along the line or lines of the proposed railroad or railroads for townsite purposes as he might from time to time designate.

In accordance with this provision the President at different times withdrew tracts of public domain which, because of natural advantages of location, appeared to be proper town sites. One June 19, 1915, the President issued an Executive Order containing regulations for the reservation of lands, the survey of the townsites, and the sale of lots providing, in so far as the work of the commission was involved, as follows:—

(1) The Alaskan Engineering Commission could take the initiative in reserving land for townsite purposes by making recommendation to the Secretary of the Interior, who was then obligated to transmit, with his own concurrence or objections, the commission's recommendation to the President, and the President could thereupon, if he approved, make the reservation by Executive Order.

(2) The commission was empowered to select a portion of the reservation for railroad purposes to be set aside by the Secretary of the Interior. The rest of the land was to be surveyed for lots, parks, schools, high-

⁴⁶ Including creation of timber reservations and elimination of lands from such reservations.

ways, docks and wharves, etc., the plats of surveys prepared by the General Land Office to be approved by the Chairman of the Commission and the Commissioner of the General Land Office.

The regulations provided further for the appointment of a superintendent to direct the auction of unreserved lots. He was authorized "to make all appraisements of lots and at any time to reappraise any lot which in his judgment is not appraised at the proper amount, or to fix a minimum price for any lot below which it may not be sold, and he may reject any and all bids for any lot and at any time suspend, adjourn, or postpone the sale of any lot or lots to such time and place as he may deem proper."⁴⁷

The manager of the commission's Land and Industrial Department was subsequently named the Superintendent. The regulations prescribed that one-third of the purchase price of any lot was to be paid at the time of sale and the balance in annual installments extending over a period of five years, with no taxes or interest on deferred payments; all payments to be made to the General Land Office.⁴⁸ There were certain restrictions placed on the lots, prohibiting their use for the sale of liquor, gambling, or immoral purposes. Penalty for non-compliance with these restrictions was the forfeiture of the lot.

In order to exercise proper control over the towns in such matters as sale of liquor, sanitation, and fire protection, so as to prevent interference with the expeditious execution of the railroad project, the General Land Office decided to sell the lots in a way which would keep the title to the property in the United States Government until the necessity was over. Payments were, therefore, extended over a period of five years. Consequently, inasmuch as the title to the

⁴⁷ House Committee on Territories, Hearings, *supra*, p. 88.

⁴⁸ On Oct. 25, 1918, the President promulgated Executive Order No. 2982 providing for an extension of one year for deferred payments due August, 1918, and thereafter, in order to meet unusual conditions due to the war.

land in some of the townsites was thus vested in the United States Government and since the power to tax property, title to which is vested in the Government, does not reside in a municipal organization, it was not practicable to turn the management of the townsites over to the citizens of the respective communities. Accordingly when the first railroad townsite was established at Anchorage in 1915, a townsite manager was appointed by the commission, and under authority of the President's regulations of June 19, 1915, land was cleared, streets improved, and arrangements made for water supply and fire protection, the cost of which was to be assessed by special levy on the property in the town. As it developed later water and electricity were sold at reasonable rates, and a certain amount of the cost of installation of the water plant was assessed against the property in the town. The electricity was supplied by a plant located in the railroad yards. 'The various street and sidewalk improvements made in the town were assessed against the property; also the sewers. An efficient fire protection was provided, the maintenance of which was charged against the property owners.'⁴⁹ In order to retain married employees, facilities for educating their children had to be provided. On December 28, 1916, the Secretary of the Interior issued an order, upon recommendation of the Alaskan Engineering Commission, authorizing the commission to expend "from appropriations made for the construction and operation of railroads in Alaska, such sums as may be necessary in the judgment of the commission for the maintenance of school facilities for children of its officers and employees, in unincorporated towns on the line of the Government railroad, until sufficient funds are available for school purposes in those towns through contributions from Territorial funds or other sources."⁵⁰

In order to meet inquiries and to be able to disseminate

⁴⁹ House Committee on Territories, Hearings, *supra*, p. 174.

⁵⁰ *Ibid.*, p. 89. By act of March 3, 1917, and April 23, 1917, Congress legislated for Alaskan schools, providing for incorporation of school districts.

general information, the Land and Industrial Department gathered descriptive and statistical data on the population, agricultural output, the mineral development, and economic progress of the territory tributary to the railroad. Weather stations were established in coöperation with the Weather Bureau to obtain meteorological records. This information, together with news of construction progress, was distributed in the form of press bulletins to all newspapers in the Alaskan and Yukon Territory and to the Associated Press in Seattle. On November 14, 1916, publication of the *Alaskan Railroad Record* was begun, to give to employees and the general public current information as to the progress and operation of the railroad and other items of interest. In 1919 the subscription list had 1125 names, including 935 official, 160 free public, and thirty paid. The editor was the manager of the Land and Industrial Department, and half of his time (\$1200) was chargeable to the editing of the paper. The total cost of the paper per year, including editing, printing, and stenographic work, was \$2950. Publication was discontinued by order of the Secretary of the Interior on July 1, 1920. The Land and Industrial Department also prepared a general summary of the development of the territory for the annual report of the commission.

Period of War-Time Retardation of Construction. Shortly after the entrance of the United States into the World War many obstacles naturally presented themselves. First of all there were two resignations from the commission itself, Col. Mears leaving on Jan. 31, 1918, and Mr. Riggs leaving in May, 1918, upon his appointment to the governorship of Alaska. No reorganization of the commission was effected, however, at this time because of the general uncertainty of war conditions, but engineers-in-charge were placed at Nenana and Anchorage, respectively.

A second difficulty was the loss of a large portion of the working force, which amounted to fifty per cent, some of the men leaving for military service and some emigrating to the states to profit from high wages. The third problem was

the constant increase in the general price level. Freight charges, for example, mounted to 40 per cent above the 1917 cost although arrangements had been made with the Shipping Board to handle all freight consigned to the commission on commercial steamers.⁵¹

In spite of all these difficulties considerable progress was made. By the end of 1918 there had been constructed 229.8 miles of standard-gauge railroad, thirty miles of sidings, spurs, and yard tracks and 9.5 miles of main line narrow-gauge tracks, while fifty-three miles of line had been graded and thirty miles more cleared.

In the fall of 1917, the Tanana Valley Railroad was purchased for \$300,000, an average of \$6818 per mile. The condition of this road at the time of purchase has been described. It was a narrow-gauge line, 44.4 miles in length, including 5.13 miles of branch line from Happy Station, 7.3 miles from Fairbanks to the town of Chena, which, at certain stages of the river was the head of navigation for the larger steamers. The main line extended northeasterly from Happy Station for a distance of 31.91 miles to Chatanika, thus tapping the several small towns in the gold mining district.⁵² The original cost to the owners was \$867,000, and their investment had originally been a profitable one; but as against \$115,902.77 in 1919, the net earnings in 1914 were only \$22,319.69, and three years later, at the time of purchase, the operating revenue was barely sufficient to meet operating expense. This decline in earnings was due to the cessation of gold mining in the district following the high costs of labor and materials, scarcity of fuel, and a relatively low purchasing power of gold during the war period.

There were three objects in the purchase of this road. First of all, without this purchase it would have been imperative

⁵¹ The transport *Crook* had to be returned to the War Department which was in need of all available tonnage.

⁵² The branch line from Happy Station to Chena has since been abandoned and the rails torn up.

to provide a right of way into Fairbanks for the government line by arranging a joint right of way occupancy over a distance of seven miles of the Tanana Valley Railroad. By this purchase, it was only necessary to convert 7.3 miles of the road from its intersection with the government railroad to Fairbanks into standard gauge by laying a third rail. The remainder of the road could be operated as a narrow-gauge line. Secondly, since the purchase price included the shops, station buildings, yards, etc., at Fairbanks, adequate terminal facilities were there provided until such a time as a significant growth of Fairbanks as a distributing center materialized; finally it was thought that this road would become a valuable feeder to the main line, for although the bonanzas had undoubtedly been worked out and a fruitful source of tonnage thus eliminated, there were great areas of low grade ground remaining that would yield a good profit under conditions of adequate transportation facilities and lower fuel cost due to the possibility of utilization of the products of The Nenana coal fields.

Post-War Period of Reorganization. With the end of the war and the gradual return of much of the working force, full resumption of operations would have been possible but for lack of funds. The commission reported 2200 men on the pay roll at the close of the fiscal year 1919, and it was stated that the force could not be increased until additional appropriations were forthcoming. For the original authorization of \$35,000,000 provided for in the act of March 12, 1914, was almost exhausted by the middle of 1919 mainly because the work had been done on a raising market for labor and materials. Congress was asked for an additional authorization of \$17,000,000, which sum the commission believed would be required to complete the work by December 31, 1922.

The House Committee on Territories, to which the bill authorizing the appropriation was referred, held hearings at which a careful inquiry was made into the work that had

been done and into the requirements of the future. The committee in recommending passage of the bill declared:

That the construction of the Alaska Railroad by the Alaskan Engineering Commission has been prosecuted under most adverse conditions, due in large part to the war, and the work has been done at the lowest cost consistent with the permanent character of the work performed. The railroad will cost on completion approximately 31 per cent. more than the amount originally estimated and the entire project, including terminals, rolling stock, and physical property, and maintenance and operation charges in excess of revenue during the entire period of construction less than 50 per cent. more than the amount originally authorized to be expended. Since the commencement of the construction of the road, wages of employees increased 59 per cent.; the prices of materials and supplies, as much as 161 per cent., and transportation costs 147 per cent. The result of accomplishing this construction at an increase of no more than 50 per cent. under such circumstances is due in large part to the system of station contracts by which the original estimates of excavation costs were very closely approximated. . . .

That in order to complete the railroad from Seward to Fairbanks by December 31, 1922, the sum of \$17,000,000 additional to the \$35,000,000 originally authorized will be required and this sum should be appropriated at the earliest possible date to be immediately and continuously available until expended.⁵³

The bill recommended by the committee became a law on October 7, 1919. Under authority of this law Congress appropriated \$6,000,000 on Nov. 4, 1919, \$7,000,000 on June 5, 1920, and the balance of \$4,000,000 on March 4, 1921.

Meanwhile Col. Mears was placed in charge of the entire work as Chairman and Chief Engineer.⁵⁴

On November 22, 1919, by order of the Chairman, a reorganization was effected. The Seward and Anchorage

⁵³ 66 cong. 1 sess., H. Rep. 231.

⁵⁴ Though the work has thus been for several years under a single commissioner the name "Commission" has been retained.

Divisions were combined into the Southern Division, while the Fairbanks Division became the Northern Division. In addition to these two functional divisions, three coordinate institutional divisions were created,—the Supply, Purchasing, and Accounting divisions.

One of the important results of this reorganization was the consolidation of the supply services of the various divisions under the direction of an engineer in charge of the Supply Division to prevent the ordering of such supplies from Seattle by one division as were already on hand at other divisions, to discover and dispose of surplus stock, and to devise a system for a permanent stores department suitable for the railroad as an operating system. It was found that the various storekeepers in their desire to anticipate various contingencies had overstocked, in many cases. With the near completion of the entire line the inventory could well be reduced in order to release more of the available funds for construction and operation.

A careful investigation was also made into the transportation situation which had always been a difficult problem, and after investigation of several alternatives the commission entered into an agreement with the Alaska Steamship Company and the Pacific Steamship Company for the calendar year 1920⁵⁵ providing as follows:

(1) The steamship companies agreed to transport all commission freight from Seattle to Seward or Anchorage at \$13 per ton with no penalties or classification.

(2) Commission employees and members of their families were to be transported at 75 per cent of the regular rates.

(3) It was agreed that there was to be no increase in rates except as a result of some extraordinary change in operating expense.

For transportation to Nenana, an agreement was reached

⁵⁵ The arrangement proved to be satisfactory and was renewed for the year 1921.

with the White Pass and Yukon Railroad, providing special rates on rail and rolling stock and regular rates on other commodities. An arrangement was made with the Coastwise Steamship and Barge Company to transport 150 flat cars and four locomotives from the Isthmus to Anchorage at \$21 per ton without penalties.

With reorganization effected and ample funds provided by Congress, good progress was made in construction and operation during 1920. By the end of the year, 456 miles of track had been laid, of which 275 miles was one continuous stretch of main line, on which a regular schedule of passenger and freight trains was in operation twice a week in both directions. A schedule of three trains a week was also in operation on the branch line to the coal fields, while in the northern division a schedule was maintained of twice a week from Fairbanks to the River and from Nenana to Healy. There remained a gap of but eighty-three miles between the ends of steel, on which section grading had been from 60 to 80 per cent completed for thirty-three miles and the right of way cleared for the remaining fifty miles.⁵⁶

Conclusion. A brief summary of the work by years from the beginning to date is shown in the statement on the following page, compiled from the various reports.

It may be noted from that table that the progress of the work was not uniform. The explanation is to be found in three sets of obstacles which faced the commission in the course of its work; those due to natural or physical causes, those due to the economic consequences of the war, and those due to lack of sufficient appropriations by Congress or the manner in which the appropriations were made.

⁵⁶ Since the above was written, hearings were held before the House Committee on Territories (67 cong. 1 sess., Oct. 7, 1921) on a bill to authorize the expenditure of an additional \$4,000,000 for completion of the work. At these hearings it was reported that sixty-one miles of track, grading on which was practically completed, and permanent bridges over the Nenana and Tanana rivers remained to be constructed while fifty-six miles of narrow-gauge road was yet to be standardized.

Class of work	Mileage of completed Work at End of Year						Mileage to be constructed
	1915	1916	1917	1918	1919	1920	
Newly constructed standard gauge railroad (right of way cleared, graded, and track laid) ^a	13¼	73¼	175.88	229.8	297.6	382	84
Sidings, spurs, and yard tracks .....	..	..	26.5	30.0	42.6	47.2	..
Main line graded on which narrow gauge track has been temporarily laid ^b .....	..	..	..	9.5	48.5	48.65	..
Line graded but no track laid or openings constructed	35	10	76.8	53.0	20.0	16.4	50
Line cleared but not graded	40	..	70.8	30.0	..	..	6

^a Not including 70.7 miles of Alaska Northern Railroad, rehabilitation of which was completed in 1920.

^b Not including 31.9 miles of the Tanana Valley Railroad, rehabilitation of which was completed in 1920.

Factors Which Retarded Construction. To treat exhaustively of the difficulties due to physical causes would necessitate the preparation of a separate chapter. It will suffice to give one illustration. In 1917 the Nenana River "a glacial stream which, when the snows melt, comes down at times with irresistible force . . . abandoned its long accustomed way, and cut into a new bed and through trees that had been standing for several generations,"⁵⁷ washing out twelve miles of track. The damage was repaired, but the road had to be re-laid in what was deemed a safer locality.

Difficulties Arising from Economic Consequences of the War. Reference has already been made to some of the effects of the war upon construction. The most important factor was the rising price level, which was responsible ultimately for a cost of construction about one-third over the original estimate. An increase in wages of from 20 to 25 per cent was granted to various classes of labor in 1916, following some labor disturbances which were settled by a board of conciliation of the Department of Labor. In April, 1917,

⁵⁷ House Committee on Territories, Construction of Alaska Railroad, Hearings on H. R. 7417, July, 1919, p. 8.

wages for common labor were increased to fifty cents per hour and skilled labor received corresponding increases. In 1918 wages were again increased, this time 10 per cent over the 1917 rate. Such advances in wages, together with simultaneous increases in prices of materials, were of necessity reflected in the unit prices paid to station men. Yet, despite these wage increases there was a scarcity of labor which, however, the commission did not attempt to meliorate through recruiting from outside sources, since it was deemed undesirable to compete with the war industries.

As to increases in the cost of materials and transportation, the following table from the 1919 report of the commission, showing the increased cost of construction of one mile of track from 1915 to 1919, is presented:

	1915	1916	1917	1918	1919	Estimated 1920
Rail	\$5,248	\$6,072	\$6,585	\$7,550	\$8,025	\$8,398.61
Angle Bars	357	352	426	457	460	523.84
Track Bolts & Nuts	39	45	65	65	65	106.48
Tie Plates	186	282	287	325	360	415.40
Track Spikes	222	423	423	492	512	514.60
Nut Locks	18	18	15	25	25	27.50
Ties	1,440	1,440	1,742	1,742	1,742	1,872.00
Ballast	750	750	780	800	762	1,000.00
Tracklaying	600	700	700	1,935	1,013	1,300.00
Surfacing	1,000	1,000	1,200	1,300	1,300	1,400.00
Total	\$9,860	\$11,082	\$12,223	\$14,691	\$14,264	\$15,558.43
	—	—	—	—	—	—

In addition to the above difficulties, there were long delays in deliveries of lumber and rail owing to shortage of shipping.

Fiscal Difficulties. The act of March 12, 1914, which authorized the construction of the railroad in Alaska, contained the following provision as to funds:

That the cost of the work authorized by this act shall not

exceed \$35,000,000, and in executing the authority granted by this act the President shall not expend nor obligate the United States to expend more than the said sum.

Under the above act appropriations were made as follows:

March 12, 1914	\$1,000,000
March 4, 1915	2,000,000
Feb. 29, 1916	2,000,000
July 1, 1916	6,247,620
March 4, 1917	3,000,000
June 12, 1917	7,500,000
Oct. 6, 1917	4,000,000
July 1, 1918	5,250,000
July 11, 1919	1,964,351
July 19, 1919	2,038,029
	<hr/>
	\$35,000,000

From the above statement it would appear that appropriations were made steadily as the work progressed, and that the commission should have had no difficulty on this account. But it was not the actual lack of money which created difficulties; it was the "utter lack of definite knowledge that the money asked for would be appropriated."⁵⁸ There were four such occasions. In the fall of 1915 the commission was practically without funds, and there was no certainty that further appropriations would be made until July 1, 1916. Congress finally appropriated \$2,000,000 on February 29, 1916, to continue the work until the regular appropriation should become available.

The commission then requested \$8,247,620 to prosecute the work between July 1, 1916, and June 30, 1917, but only \$6,247,620 was made available, and even this reduced amount did not become available on July 1 as customary, so that "large items that the commission had planned to pay out of it had to be met by payment from the small deficiency appropriation, and this at a time when we had continuous daylight in Alaska for prosecuting the work."⁵⁹

The third instance occurred in 1917. While \$3,000,000

⁵⁸ *Ibid.*, p. 184.

⁵⁹ *Ibid.*, p. 185.

was included in the sundry civil bill for the fiscal year 1918, a deadlock prevented its passage, and "most energetic measures had to be taken to get a joint resolution put through, to make this \$3,000,000 available." Until March 3, when this appropriation was secured, the commission was unable to proceed with its plans.

The same difficulty handicapped the project in 1919. The estimate to carry on work during 1919 was \$4,002,380, being the balance of the original authorization of \$35,000,000. This amount was incorporated in the sundry civil bill, but no appropriation was made till July, 1919. During the period from March to July, the forces engaged in the work in Alaska were paid only about 25 per cent of their monthly earnings, and new work was out of the range of possibility. The best part of the season was thus lost, and when the appropriation became available, it was too late to recruit a force or carry on any significant activity.

Such uncertainty as to available funds would have been unfortunate for any ordinary governmental or private activity but for the Alaskan railroad project, the evil was magnified through the peculiar local conditions. Supplies for construction, such as powder, dynamite, and tools, as well as food and clothing could be cheaply and advantageously distributed over winter sled roads to points along the contemplated line of work for the spring. To obtain such supplies it was imperative to notify the commission's purchasing agent in Seattle in January in order that he might advertise for supplies as required by government procedure. It was essential, therefore, that the engineer in charge have a plan of work the season before in order to calculate the number of men to be employed and the supplies required. Without definite knowledge of the funds which would be available, no such plans could be made. As Colonel Mears expressed it, "The flow of a continuing appropriation is like the oil to a smoothly working engine. If the oil comes by fits and starts and sometimes stops altogether, the machine does not work as smoothly or

as advantageously.”⁶⁰ Moreover, because of shortage of funds, the station men might receive but one contract a season and then be obliged to wait at their own expense for another contract to be given out.

Not only was the uncertainty as to funds a hindrance to efficient work, but the system of appropriation by fiscal years was unsuited to Alaskan conditions. Commissioner Mears said on this point:

Nothing could be more unfortunate for the Alaska project than the appropriating of moneys by fiscal years—beginning and ending on July 1.

On June 21 we have the longest day in the year in Alaska, practically continuous daylight, where two or three shifts can be employed to equal advantage. Now, if annual appropriations could have been made available as [of] January 1, so as to plan ahead and make the preparations I have referred to, greater efficiency would have resulted. Under the enforced July 1 appropriation system there was bound to be a pause in plans and preparations to wait to see what Congress was going to do. The seasons were reversed in Panama, for on July 1 we have heavy rains. On January 1 we were at the beginning of the “dry” seasons, when most of our work was done.⁶¹

The evidence presented as to these problems at the Hearings of the House Committee on Territories in 1919 resulted in the enactment of the bill, already described, providing that the sum of \$17,000,000 required to complete the project should be continuously available till expended. Of this sum \$13,000,000 was made available for the fiscal year 1919-20. This was the first time since construction was undertaken that ample funds were available in advance of the working season.

In December 1920 the commission reported that \$3,500,000 would be required in addition to the fifty-two million already authorized, to complete the entire project and to provide for maintenance and operation up to the probable date of com-

⁶⁰ *Ibid.*, p. 183.

⁶¹ *Ibid.*, p. 186.

pletion, which has been set at December, 1922. This increase over the estimate was the result of both the rise in wages and prices during 1920 and expenditures authorized by Congress to be made for a coal-cleaning plant.⁶²

Earning Possibilities of the Railroad. One of the effects of the war has been a general setback in the economic development of Alaska. The production of gold dropped nearly 45 per cent between 1916 and 1919, while the labor force employed in all forms of mining has been cut in half. There were no war activities to compensate for these losses, except for an increased copper production. Consequently, many localities in Alaska are in the status of abandoned mining camps. The question has been often raised, therefore, as to whether the earning power of the railroad upon completion will ever justify the expenditure made. The testimony of Chairman Mears before the subcommittee of the House Committee on Appropriations on this point is illuminating. He said:

My judgment is that this railroad is not going to pay until the country is developed, but as soon as it is connected through it will get the business that is now going in by the other railroad,⁶³ a business which will amount to about half a million dollars a year. It will get what little business is developing . . . near Anchorage and the Willow Creek gold mines, and it will develop the Kantishna mining district, which looks very promising.⁶⁴

It may be concluded, therefore, that a long period may elapse before the earnings of the railroad will justify the expenditure made. However, the history of railroad transportation in Alaska, as outlined in the preceding pages, dem-

⁶² House Hearings, Dec., 1920, Sundry Civil Appropriation Bill for 1922, p. 1906 et seq. In October, 1921, this estimate was raised to \$4,000,000. See footnote 56 supra.

⁶³ Referring to the White Pass and Yukon Railroad.

⁶⁴ House Hearings on Sundry Civil Appropriation Bill for 1922, 1920, p. 1911.

onstrates that the Federal Government assumed the responsibility of railroad building only after it had been clearly proven that private initiative and capital could never meet the requirements of the territory under existing conditions, and the whole project was undertaken primarily in the hope of developing Alaska, not with the thought of immediate financial return.⁶⁵

⁶⁵ See annual report of the Secretary of the Interior for 1921, Appendix D, for estimate of commercial traffic and a forecast of the effect of the railroad on the development of Alaska.

CHAPTER II

ACTIVITIES

In the previous chapter the work of the Alaskan Engineering Commission was described in a general manner only to the limited degree that such description was requisite for an understanding of its history. But from what has been written the inference is clear that the commission had but one function, the construction of the proposed government railroad in Alaska. As a consequence, of this single function, however, there devolved upon the commission, a long list of distinct activities, some of which appear totally unrelated, at first sight, to the central project. These activities may, be classified as follows:

- (1) Activities preceding construction
- (2) Construction activities
- (3) Activities supplementary to construction
- (4) Operating and maintenance activities
- (5) Activities relating to traffic development

In order to point out the relative significance of each of the above classes of activities and the principal items included in terms of the only available common unit—financial outlays—the following table is given showing approximate expenditures to December 31, 1920, in so far as information is available:

Activities Preceding Construction	
Preliminary Investigation and Survey	\$431,000
Placing Final Location	305,000
Activities of Construction	
Construction of Railroad	* 32,206,000

* Including about \$3,500,000 for construction equipment, supplies, and machinery which can be disposed of ultimately for cash, though probably at considerable loss, and about \$2,678,000 of equipment ultimately available for operation.

Construction of Telephone and Telegraph	591,000
Construction of Wharves and Docks . . .	585,000
Construction of Shops, etc.	368,000
Activities Supplementary to Construction	
Purchase and Rehabilitation of Tanana	
Valley Railroad	445,000
Purchase and Rehabilitation of Alaska	
Northern Railroad	4,843,000
Operation and Maintenance	
Railroad Operation	2,650,000
Coal Mining	376,000
Activities Relating to Traffic Development and	
Town Site Improvements	305,000
All Other Expenditures	125,000
Total Expenditures	<hr/> \$43,230,000

Of the above activities, those which preceded construction and are now only of historic interest have already been described. In this chapter only those activities will be described which are being carried on at the present time.

Construction Activities. The work of railroad construction proper has been practically completed. On October 1, 1921, only sixty-one miles of track remained to be constructed out of the total mileage of the railroad of 539.93 miles, and grading on this gap was almost completed on that date. There were also two large rivers to be bridged, the Nenana and Tanana. The estimated cost of the bridge over the Tanana River, which will be 1340 feet long, constructed of steel resting on concrete piers, is \$1,867,232 while the cost of the Nenana bridge, approximately 600 feet long and of heavy timbers on concrete piers, is estimated at \$160,000. It will be necessary, furthermore, to complete the standardization between Nenana and Fairbanks of the narrow gauge track, of which there remained fifty-six miles on October 1, 1921, and to ballast and put into condition for freight and passenger traffic the newly laid track. When completed the railroad will be 539.93 miles in length, including 467.62 miles of main line between Seward and Fairbanks, 37.7 miles of branch line from Matanuska Junction to Chickaloon, a spur of 2.7 miles

leading from the branch line to the Eska coal mines, and a branch of 31.91 miles leading from Happy Station to Chatanika. As the work of construction nears completion, the commission's force is being adapted to the work of maintenance and operation.

Terminal Facilities. The specific provisions of the act authorizing the construction of the road, as well as its general purpose, contemplated a permanent system aimed to develop the interior of Alaska and to encourage the settlement of the public lands. To attain this end complete and well supplied termini were established with shops, warehouses, depots, oil and power houses, docks, wharves, etc. Considerable revenues were derived from some of the above sources. Thus from the commercial disposition of electrical power, the sum of \$93,034.19 was derived in the period from March 12, 1914, to March 31, 1919. Little remains to be done in the way of initial construction of terminal facilities. An estimate submitted by the commission in October 1921 of additional required work shows that increased roundhouse and car repair facilities at Anchorage are all that is planned for the present, the cost of which will be about \$60,000.¹

Telephone and Telegraph Lines. The act of March 12, 1914, granted authority "to construct, maintain, and operate telegraph and telephone lines so far as they may be necessary or convenient in the construction and operation of the railroad or railroads as herein authorized and they shall perform generally all the usual duties of telegraph and telephone lines for hire."

When the commission began its work, there was no telephonic communication from Seward to Anchorage. Communication between these two points was by steamer only, which took twenty-four hours. In 1915 a temporary telephone line of 120 miles was erected connecting the two centers, equipped either for telegraph or telephone operation, and in 1916 a standard 8-foot 6-pin cross-arm line was built from

¹ Hearings 1921 before House Committee on Territories, p. 10.

Seward to mile 51. A telephone system was also installed at Anchorage, a monthly charge being made for the service, while a tripod line, carrying four wires was extended from mile 248 to mile 284. A pioneer line was built from that point to mile 335 and connection was established with the pioneer line of the northern division, thus giving, for the first time, direct telegraph and telephone circuits for both divisions. Construction of only 7.2 miles of temporary telephone line and 7.2 miles of permanent telegraph line are provided for in the estimate submitted for the fiscal year ending June 30, 1923. By the end of 1920 the permanent line had reached mile 248.

Wagon Roads. Roads have been built to connect the various zones of operation in order to make possible the hauling of supplies for construction, maintenance, and operation. In addition roads have been built on the townsites which are adjacent to the railroad and extensions have been made to connect with the roads built by the Board of Road Commissioners "just the same as a county will build roads connecting with State highways and build them as feeders." ²

Rehabilitation of Purchased Railroads. Reference has already been made to the evaluation and purchase of the Alaska Northern and Tanana Valley railroads, and their general condition at the time of purchase has been described. The commission estimated in 1914 the approximate cost of placing the Alaska Northern in condition for light traffic to be \$955,601. A much greater expenditure was required for reconstruction of the railroad for standard traffic to make through connection possible with the remainder of the system from Anchorage to the Matanuska coal fields. Up to October 31, 1920, about \$3,798,000 had been spent, and it was estimated that about \$40,000 in addition would be required to complete this phase of the undertaking.

Expenditures up to March 31, 1919, for rehabilitation of the Tanana Valley railroad, including also changes in the line,

² Hearings before the House Committee on Territories on H. R. 5694, May, 1921, p. 403.

rebuilding of unsafe bridges, reconstruction of culverts and trestles, and ballasting, were \$44,858.23. To complete the work it was estimated that \$84,300 would be required; which would make the total cost upon completion, including the purchase price and an arbitrarily allocated portion of the general expenditures, \$445,609.48.⁸

Operation. The commission not only operates the newly constructed railroad with which the two rehabilitated, purchased roads, the Tanana Valley and the Alaska Northern, have recently been merged but it also operates coal mines, telegraph and telephone lines, docks, a transfer service, power plants, etc.

Operation of Railroad. In 1915 sufficient repairs were made on the railroad and its terminal to enable the operation of a gasoline motor combination freight and a passenger car, or a light engine and caboose, from Seward to a point at a distance of thirty-four miles. A tri-weekly service was maintained on this run during the winter of 1914-15. There were various extensions and contractions in the service in the next four years, in conformity with the requirements for rehabilitation of the road and the available traffic. By July, 1919, work on the Alaska Northern had progressed sufficiently to make a connection possible with the main line so that an intermittent through service was begun from Seward to Anchorage. The earnings of the road were, of course, far from sufficient to meet expenses. Thus, earnings for the 1919 season averaged but \$1378 per month, while expenses were about \$11,078 per month.

The Tanana Valley Railroad was operated by the commission in the 1917 season under an agreement with the owners. Whereas in 1909, the road showed a surplus of \$115,902.77 with gross earnings of \$298,250.54, in 1919 a deficit of \$29,831.44 was reported on gross earnings of \$48,110.77. The engineer in charge, in commenting on the above deficit in

⁸ The annual report of the Secretary of the Interior for 1921, (p. 214) shows that the work of rehabilitating both roads had been practically completed by the end of 1920.

1919, called attention to the fact that the district on which this road was dependent for revenue was being rapidly depopulated. Unless the country was rehabilitated, there was poor prospect for the road earning its expenses as an operating unit although as a feeder to the main line in the future its status might become more favorable.

For operating the newly completed line a terminal district was organized in the Anchorage Division in 1916. Thereafter, as rapidly as track was completed on this division, the Terminal District assumed control, trains being operated primarily for purposes of construction. Fares were collected on the basis of six cents per passenger mile, beginning with January 1, 1916, and reports were made in accordance with the requirements of the Interstate Commerce Commission. By July, 1919, it was possible to inaugurate an intermittent through service from Seward to Anchorage. North of Anchorage a service of one train a week was maintained to Talkeetna and two trains each way each week to Eska and Chickaloon.

In 1920, except for the months of February, March, and April, when train operations were interrupted by snow-slides, trains were run twice a week between Anchorage and the northern end of steel, and between Anchorage and Seward; and three times a week between Anchorage and the Eska and Chickaloon coal mines on the Matanuska branch. After October 1, 1920 the United States mail for points in interior Alaska was transported over this route to the end of steel and by horse-drawn sleds over the unfinished part of the roadbed.

On December 4, 1921 the commission advertised acceptance of through traffic both ways from Seward to Fairbanks, although transfer at certain gaps was still necessary by temporary tracks laid on ice, tramway, or footbridge. It is expected that through carriage of freight on the road will be possible by the latter part of 1923 or the early part of 1924.⁴

⁴ House Hearings on the Interior Department Appropriation Bill for 1923, pp. 868-869.

The following table shows the mileage operated each month from January, 1916, to date, including yard track and sidings.⁶ From October, 1918, on, the figures include the mileage operated on the Alaska Northern Railroad and the Tanana Valley Railroad as well as the newly constructed line.

Month	1916	1917	1918	1919	1920
January	12.58	71	121	360	... 414
February	23.87	71	121	366	... 414
March	23.87	71	121	370	... 414
April	28.55	71	121	370	... 414
May	42.99	71	121	370	... 414
June	43.53	71	160	372	... 414
July	44.07	83	160	374	... 414
August	58.4	83	160	385	... 414
September	58.4	86	168	386	... 445
October	58.4	100	294	409	... 445
November	79.5	121	294	414	... 445
December	79.7	121	294	414	... 456

The receipts from the operation of the road in 1920 amounted to about \$25,000 per month, which was not, of course, sufficient to meet expenses.

The estimated cost of operating the line for the fiscal year ending June 30, 1923 has been placed at \$1,428,030, and revenues have been estimated at \$660,000; leaving a net operating deficit of \$768,030.⁵

Operation of Coal Mines. Reference has already been made in the first chapter to the operation of a coal mine by the commission following the failure of a private operator to supply the coal required for construction and operation of the railroad. In the coal mining operations which were conducted at the Eska Creek and Chiekaloon mines the commission has had a three-fold purpose: the supplying of fuel at low cost for the railroad and the communities nearby, the extensive prospecting and development work to ascertain the

⁵ Not including \$893,980 for maintenance of line. In the fiscal year 1921 the revenue from passenger traffic was \$91,935.65, from freight traffic \$109,389.69, from mail, baggage, express, etc., \$238,330.45, a total of \$439,655.79.

⁶ For miscellaneous traffic statistics, by months, see annual report of the Secretary of the Interior for 1921, p. 217.

quantities available and the ascertainment of the cost of production. The output of coal up to the present time has been more than sufficient to meet the needs of the commission.⁷

The following table gives the output and costs of production for the period from June, 1917, to February, 1919, as reported by the commission:

		Average per ton
Coal shipped to Alaska Engineering Commission at Anchorage		
From Eska Mine . . . short tons	80,768.80	
From Chickaloon . . . do.	5,337.43	
Total	86,106.23	
Cost of mining, including development work:		
Eska Mine	\$377,683.44	\$4.67
Chicaloon	103,111.47	19.32
Total	\$480,794.91	\$5.58
Cost of development work included in above:		
Eska Mine	\$76,294.61	\$.94
Chickaloon	103,111.47	19.32
Total	\$179,406.08	\$2.08
Net cost of mining coal, exclusive of development work	\$301,388.83	\$3.50
	\$480,794.91	\$5.58
<i>Charges for Coal Shipped to Alaskan Engineering Commission</i>		
18,159.68 short tons, at \$5 . . .	\$90,798.10	
77,964.61 short tons, at \$6 . . .	467,679.66	
Total	\$558,477.76	
Profit over cost of mining and development	\$77,682.85	....
	\$558,477.76	

Up to June 30, 1921 there was expended at Eska \$1,130,242.49, of which \$225,111.79 represents permanent

⁷ In the period from June, 1917, to June 30, 1921, the saving was estimated at \$1,702,860.

investment. The remainder of \$905,130.70 was spent in maintenance and operation, for every \$5.32 of which there was produced a ton of coal. At Chickaloon, the expenditure for mine development was \$202,413.27. This mine was turned over to the Navy in 1920 with a view to developing a fuel supply for the Pacific Fleet. Reimbursement has not been made to the commission by the Navy for the expenditure made in development work.

Operation of Docks. The commission operates three docks: the Seward dock which is operated the full twelve months in the year; the Anchorage dock which, on account of the closing of the harbor by ice for five months, is only open seven months, and the Nenana dock which is operated only about five months because of the freezing of the Tanana River. A large portion of the traffic over all these docks consists of freight for the use of the commission itself. No detailed figures are available for dock operations at Nenana, but for Anchorage and Seward the data for 1920 are as follows:

	Anchorage	Seward
Total freight (tons)	24,695.47	22,034.17
Operating expense ⁸	\$32,443.95	\$23,234.06
Capital account	327,368.45	92,445.62
Total expense per ton handled	2.1	1.3
Total credit per ton handled ⁹	2.03	1.55

The total operating cost in 1920 of operating the three docks was about \$65,000.

Operation of Power Plants. The power plant at Nenana furnishes electrical energy, steam heat, and water to the buildings and shops of the commission, and lights on the Commission Reserve and the Nenana Townsite. It also furnishes light and power to consumers within the Nenana Townsite. In 1920, 173,460 K. W. hours were distributed, of which 98,100 K. W. hours were consumed by the commission, 8,837 K. W. hours by the Nenana Townsite, and 66,523 K. W.

(⁸) Not including light and heat for the docks estimated at about 10 cents per ton of freight handled.

(⁹) Including 6 per cent interest on capital account.

hours by commercial customers. From power sold, motor rentals, and meter deposits, \$11,617.75 was collected during the year. At Anchorage, the commission furnishes the town with light and power over one meter. Distribution of the cost is made by the town itself among the consumers of the power.

Operation of Other Services. A receiving and forwarding department at Anchorage handles all freight and passengers arriving by steamer. In 1920 the volume of traffic handled was as follows:

<i>Commercial freight</i>	<i>Tons</i>
Inbound	5,089.49
Outbound	506.31
<i>Commission freight</i>	
Inbound	18,602.85
Outbound	450.18
Express and mail handled	46.64
Grand Total	<u>24,695.47</u>
Passengers handled	<u>1,302.00</u>

Several sawmills are being operated to supply timber for the work of construction and maintenance of the railroad, terminals, docks, warehouses, etc. A telegraph and telephone system is operated primarily in connection with the work of railroad construction, maintenance, and operation, but service is also extended to the various towns along the line of the railroad. Base hospitals are maintained at Anchorage and Nenana and field hospitals at various construction points.

Maintenance. As the work of construction nears completion, the most important function of the commission, next to operation of the railroad, becomes that of maintenance, not only of the track and transportation equipment, but of all the facilities established during the eight years of construction. Repairs are being made constantly to the terminal buildings, docks, warehouses, bridges, sawmills, snowsheds, locomotives, cars, marine equipment, etc. Many of the commission's staff are now being utilized for this work. It is estimated that

for the fiscal year 1923, the maintenance cost will be \$722,240 for the line from Seward to mile 264, including the Matanuska branch, and \$171,740 for the line from mile 264 to Fairbanks, including the Chatanika branch.

Development of Traffic. Through the Land and Industrial Department, the commission until 1920 gathered descriptive and statistical data on the population, agricultural output, and general economic progress of the territory tributary to the railroad; furnished information to prospective home-steaders; and carried on such other activities as would ordinarily in a privately constructed railroad be under a traffic department. Following the reorganization of November, 1919, the Land and Industrial Department was placed directly under the Southern Division Office, and jurisdiction in these matters for the Northern Division was assigned to the Engineer in Charge.

Doubt as to the commission's statutory authority to engage vigorously in traffic promotion activities and lack of appropriations for these purposes prevent the development and execution by the commission of a constructive plan to populate the country through which the railroad passes and to promote the establishment of local industries.¹⁰ The most important activities relating to traffic development are those connected with the establishment and management of townsites, details of which have been given in Chapter I.

The policy of expenditures for townsite purposes has been recently abandoned by the commission, and it is gradually withdrawing from its townsite activities. Thus the town of Anchorage has been incorporated and the commission no longer supervises its management. The public utilities, however, have not been taken over by the town, and the commission furnishes light and power.

¹⁰ This matter awaits the general reorganization of the administration of national property and interests in Alaska, which is now under consideration by Congress. See House Hearings before the Committee on Territories on H. R. 5694, 67 cong. 1, sess. (May 1921).

The first sale of lots under the regulations took place from July 10 to 17, 1915, at Anchorage, and others followed from time to time as the railroad advanced through the country. On May 31, 1919, the number of lots sold in each locality and the amounts paid were as follows:

	Anchorage	Nenana	Matanuska	a Seward	Wasilla	Total
Lots sold	1,075	430	59	150	53	1,767
Average price per lot	\$193	\$320	\$158	\$182	\$105	
Total amount of such sales	\$208,065	\$137,790	\$9,355	\$27,345	\$5,565	\$388,120
Payments received to date	145,211	74,665	3,961	27,205	4,125	255,167
Deferred payments .	62,854	63,125	5,394	140	1,440	132,953

As to the disposition of these revenues, the act of March 12, 1914, provided that any revenue from the lease, sale, or disposal of public land should be covered into the Treasury of the United States as a miscellaneous receipt. But to reimburse the commission for expenditures made by it for public purposes in the towns and to provide for whatever additional expenditures would be required in this direction, by an act of April 17, 1917,¹¹ fifty per cent of the proceeds from

a At Seward there were two tracts of land owned by the Government which were within the incorporated limits of the town. During the summer of 1915 these tracts, known as the Federal and Cliff Additions, were subdivided into lots. Sales of lots within these additions were held on September 11 and September 21, 1916. The regulations for the sale of these lots were different from those in the towns where the Government owned all the property. To avoid complications in the matter of taxes, street assessments, etc., these lots were sold outright, half the purchase price to be paid at time of sale, the balance being due in one year. There are no restrictions or conditions in the sale. The payments are required within one year in order that patents can issue and the town be thereby enabled to tax the lots as soon as practicable.

¹¹ That until June 30, 1918, not to exceed 50 per centum of the moneys received from the sale of lots or tracks within any town-site or townsites heretofore or hereafter sold pursuant to the provisions of the act of March 12, 1914, entitled "An act to authorize the President of the United States to locate, construct, and operate railroads in the Territory of Alaska, and for other purposes," may, in the discretion of the Secretary of the Interior, be set apart and expended within the respective townsites in which such lots or tracts are sold, for the purpose of preparing the land for occupancy, the construction, installation, and maintenance of public utilities and improvements, and the construction of public-school buildings, under such terms and conditions as the Secretary of the Interior may prescribe, and the moneys so set apart and designated are appropriated for the purpose of carrying these provisions into effect; *Provided*, That such moneys as may have been heretofore or may

the sale of townlots, until June 30, 1918, was granted to the commission. On July 31, 1917, the Secretary of the Treasury issued a warrant for transfer and appropriation of \$82,184.32 from "proceeds of townsites" to the "cost of construction and operation account." This lot fund was utilized for the building of school houses; to meet expenses of local government; to pay for the improvement of streets and sidewalks abutting on municipal and federal property, and for general public welfare.

The following statements of expenditures to Dec. 31, 1919, in the various townsites, showing the method of reimbursement, indicate the magnitude of the work in the administration of the townsites:

EXPENDITURES BY THE ALASKAN ENGINEERING COMMISSION IN TOWNSITES TO
DECEMBER 31, 1919

	Anchorage	Matanuska	Wasilla	Seward
Water System	\$38,472.91	\$4,621.08	\$ 135.85	
Sewer System	16,834.56			
Clearing Lots and Streets and/or grading	27,254.09	3,073.05	} 1,730.54	\$4,969.21 675.28
Sidewalks	25,519.64	968.94		
Drainage and Sanitation		2,122.09		
School House	46,848.95			
Municipal Building	2,497.01			
Salaries: Townsite Man- ager and Health Offi- cer	8,161.79			
Street and sidewalk im- provements abutting municipal and federal blocks, trunk sewer, cemetery improve- ments, etc.	33,069.05		44.48	
Maintenance	\$76,414.54			
Total all expendi- tures	\$275,072.54	\$10,993.89	\$1,910.87	\$5,907.58

hereafter be expended for such purposes under and by authority of the Alaskan Engineering Commission from the funds at its disposal shall be reimbursed from the amount designated for the purposes herein provided: *Provided, further,* That a report of the expenditures hereunder shall be made to Congress at the beginning of each regular session.¹¹

The commission attempted, without success, to have this provision in the acts of appropriation for the two succeeding years.

^a Including fire protection, sanitation, streets and sidewalks from beginning of town to June 30, 1919.

^b Including \$208.73 for engineering and supervision.

^c Including \$263.09 for bridge construction.

ALASKAN ENGINEERING COMMISSION

METHOD OF REIMBURSEMENT TO ALASKAN ENGINEERING COMMISSION FOR
EXPENDITURES MADE ON TOWNSITES TO DECEMBER 31, 1919

	Anchorage	Matanuska	Wasilla	Seward
Assessments levied	\$181,772.88	\$ 1,541.55		
" paid	145,798.86	1,081.75		
Balance due from as- sessments	35,974.02	459.80		
General expenses under lot fund	93,299.66	9,912.14	\$1,910.87	\$5,907.58
Receipts from lot fund	64,760.40	1,932.69	1,090.31	7,723.50
Balance due Alaskan Engineering Commis- sion	28,539.26	7,979.45	b 820.56	c
Lots sold	1,285	61	53	144
Total sale price	233,930.00	9,880.00	5,765.00	27,330.00
Total paid	158,029.68	4,010.81	4,213.00	27,315.00

a Including deferred payments amounting to \$11,928.63 in 1920.

b Of which only \$555.94 is available from the lot fund, leaving a deficit of \$264.62.

c \$7,749.92 available for future expenditure.

CHAPTER III

ORGANIZATION

The Alaskan Railroad Construction Act imposed no restrictions upon the President in the choice of means of executing the purpose of the act. It was thus made possible to prosecute the work of construction free from most of those restrictions normally associated with a government enterprise of this nature.

It was fortunate that there was this freedom of action and that no specific organization had been prescribed by Congress; for the project involved four different stages, for each of which changes in organization were necessary to effect the best adaptation to the requirements of the work in hand. In the first stage, from the date of appointment of the commission to the beginning of construction, the work was to make the investigations and surveys, and an organization was set up which was deemed best for this purpose. Three districts were created, each under administrative direction of one of the Commissioners, the first covering the region south of Knik Arm, the second extending northward to Broad Pass, and the third covering the section north of Broad Pass. Eleven fully equipped parties were organized for reconnaissance and survey in these districts.

The second stage from April to December, 1915, covers the period when the commission organized for the work of construction. By Executive Orders of April 10 and April 30, 1915, the supervision and control of the entire project was vested in the Secretary of the Interior, as completely as if "said work had been placed by law under the jurisdiction and control of the Department of the Interior." The Secretary, however, allowed the commission general freedom of action in location and construction, and was guided almost

entirely by the advice of the commission even in questions of policy.¹ He stated in February, 1919, that "the work of locating and constructing the road has been left in their hands entirely. The only instruction which they (the Commissioners) received from me was that they should build the road as if they were working for a private concern, selecting the best men for the work irrespective of politics or pressure of any kind. I have not asked them to appoint one man."²

By the Executive Orders referred to, the Chairman of the commission, who was to be designated by the Secretary of the Interior, was given immediate charge of the work in Alaska, his important powers and duties being enumerated as follows:

1. Power of approval or disapproval of all administrative matters connected with the work in Alaska.
2. Power to organize and subdivide departments, among which there was to be a department of construction and engineering, of which the Chairman was to be chief engineer.
3. Power to assign duties to each department.
4. Power to appoint heads of departments and fix their salaries subject to disapproval of the commission as a whole; the heads to be allowed to fix primarily the salaries of employees in their respective departments after consultation with the Chairman and subject to disapproval of the commission.
5. Power to designate the district in which supplies should be advertised for publicly.
6. Power to grant the other two members of the commission leave of absence.
7. Permission to assume presidency of Alaska Northern Railroad after its purchase.

The commission as a whole was charged with the following duties:

¹ See statements of Commissioners at 1919 Hearings relative to purchase of the Alaska Northern, etc.

² House Committee on Territories, Hearings, 1919, p. 8.

1. The general duty of preparing and adopting plans for construction.
2. The employment of such force as might be from time to time necessary.
3. The making of all contracts for the purchase of the necessary supplies and plant for this work.
4. Immediate conduct of affairs of the Alaska Northern Railroad.
5. Coöperation with the duly constituted authorities in Alaska to preserve law and order.
6. Preparation and maintenance of such arrangements as required for health of employees and a system of compensation for accidents.

Under the above division of powers and functions the commission began the work of construction proper. Administrative headquarters were established at Seward, Alaska, where the office of the Chairman and Chief Engineer was to be located. Commissioner Mears was placed in charge of new construction, while Commissioner Riggs was to make the final location north from Broad Pass to Fairbanks.

The third stage, from the beginning of 1916 to the end of 1917, may be termed the stage of expansion of organization, when new divisions and departments were organized to meet the rapidly enlarging field of activity. Three construction divisions were created, the Anchorage Division, the Seward Division, and the Fairbanks Division, while the Land and Industrial Department was organized and the office of Engineering Representative in Seattle established. The construction work on the Anchorage Division was in turn subdivided into three sections, the Matanuska District, the Turnagain Arm District, and the Talkeetna District, while operation and maintenance was assigned to the terminal district. A General Storekeeper's Department, to attend to all matters pertaining to material, supplies, and shipping was also established in the Anchorage Division.

The fourth stage, from January, 1918, to January, 1919,

covers the period of contraction of organization in direct consequence of the active participation of the United States in the World War. Two of the Commissioners resigned and only the Chairman remained to carry on the work which, meanwhile, rapidly converged to the point where operation and maintenance rather than new construction became the center of activity. The last stage, which is the present one, is marked by the reorganization and integration of the various divisions and departments in an effort to meet the need for unification, compactness, and centralization of organization, the entire work being placed under a single Commissioner.

Thus the organization history reveals an interesting transition from a somewhat chaotic but flexible organization, such as was best suited to the ascertainment and solution of the many undefined problems to be encountered in the preliminary stage of a large construction project in a relatively unknown country, to a systematic, integrated, and centralized organization best suited to the requirements of a nearly completed railroad construction project in a country now relatively well known. It would not be feasible to describe in detail beyond the general outline already given, the character of the organization at each stage, or the mechanism of the transition. In this chapter the organization is, therefore, described in detail only as it exists at the present date.

Administration. The President of the United States, under the act of March 12, 1914, has full authority and is generally responsible not only for the work of construction proper but also for all preliminary, supplementary, and ancillary matters involved therein. The Secretary of the Interior has been designated by the President as the executive officer of the Government to direct the work. The Secretary of the Interior grants almost complete autonomy to the organization in the field under the direction of the Chairman and Chief Engineer liaison between the Department of the Interior and the

field work being maintained through an office in the Interior Building, the personnel of which includes one senior clerk and a stenographer.

The general administrative offices are at Anchorage, with an administrative staff as follows:

- Chairman and Chief Engineer
- Assistant Chief Engineer
- Chief Clerk
- Bridge Engineer
- Special Disbursing Agent
- Manager Land and Industrial Department
- Superintendent Telegraph and Telephone Lines

Divisions. There are five general divisions under the administrative staff created by the Chairman by order of November 22, 1919, as follows:

Functional Divisions

1. Southern Division
2. Northern Division

Institutional Divisions

1. Supply Division
2. Purchasing Division
3. Accounting Division

Southern. This division, under direction of the Assistant Chief Engineer comprises the district from Seward (mile 0) to Broad Pass (mile 315), including also all spurs and branches as well as the operation of the coal mines in the Matanuska fields.

The headquarters of this division are at Anchorage, and its administrative staff is merged with the office force of the general administrative staff. The subdivisions are as follows:

1. The Railroad Maintenance and Construction Division, which has the responsibility for the maintenance and construction of the railroad in the Southern Division. This railroad division is under the direction

of an "Engineer of Maintenance and Construction" whose assistants are:

An Assistant Engineer of Maintenance and Construction.

A Superintendent of Construction, with local jurisdiction over maintenance from Seward (mile 0) to Anchorage (mile 114).

An Assistant Superintendent of Track, with local jurisdiction over maintenance and construction of track from Anchorage northward to end of track and the Matanuska Branch Line and coal spur.

An Assistant Superintendent of Construction, with local supervision over transportation and camps in the construction district, extending northward from the end of steel.

2. Railroad Operating Division, including the following departments reporting to the Engineer of Maintenance and Construction.

Transportation Department, under the Trainmaster.

Mechanical Department, under the Master Mechanic.

Telegraph and Telephone Department, under a Superintendent.

Drafting Department, under the Chief Draftsman.

Anchorage Dock, under the Receiving and Forwarding Agent.

Townsite and Railroad Record, under the Manager and Editor.

Disbursing Office, under the Special Disbursing Agent.

Hospital, under the Chief Surgeon.

3. A Mining Department, under direction of a Resident Mining Engineer, assisted by a Superintendent of Mines, charged with operation and development of the Matanuska coal fields at Eska Creek and Chickaloon.

Northern. This division, the headquarters of which is at Nenana includes:

1. The operation and maintenance of the Tanana Valley Railroad between Fairbanks and Chatanika and Fairbanks and Chena; covering also the new trackage on the Goldstream line north of Tanana River to mile 414 under a Superintendent and Disbursing Agent whose office is at Fairbanks.

2. The operation and maintenance of completed track (standard gauge) southward from Nenana (mile 414) as well as all new construction south toward Broad Pass, under the local direction of the Superintendent of Construction.

3. A Disbursing Department, under a Special Disbursing Agent.

4. Nenana Townsite, under a Townsite Manager.

5. Hospital Department, under a Chief Surgeon.

Supply. This division, under an Engineer in Charge with headquarters at Seward, has four general duties:

1. Supervision over all supplies required for construction and all supply offices. All orders and requisitions for supplies are routed to the Supply Division and are disposed of according to directions of the Engineer in Charge.

2. Control of all shipments of ocean freight, in and out bound.

3. The operation of the Seward Dock.

4. Management of the Employment Office.

Accounting. The Accounting Division, the head of which is an Examiner of Accounts, is located at Anchorage and has charge of all accounting matters for all departments and divisions. It includes the following offices:

1. Disbursements

2. Appropriation Accounts and General Statements

3. Auditor of Station Agents

4. A Southern Division Accounts

5. A Northern Division Accounts

6. A Supply Division Accounts

Purchasing. The Purchasing Division, under the General Purchasing Agent, is located at Seattle. In addition to handling all details relating to the purchase of supplies and equipment for the work in the field, it has supervision of all Seattle activities of the commission, including the hiring of employees, the receipt and shipment of ocean freight, and the inspection of material and supplies purchased.³

Personnel. The number of employees in each division as of April 15, 1921 is summarized in the following table:

Purchasing	15
Supply	133
Accounting	34
Southern	
Maintenance and Operation	772
Construction	1,136
Administration	9
Northern	
Maintenance and Operation	154
Construction	637
Administration	4
Total, all divisions	<hr/> 2,894
Pay roll	2,047
Contractors	847

³ This inspection is usually done by contract with a commercial company specializing in that field.

APPENDIX I

OUTLINE OF ORGANIZATION

EXPLANATORY NOTE

The Outlines of Organization have for their purpose to make known in detail the organization and personnel possessed by the several services of the national government to which they relate. They have been prepared in accordance with the plan followed by the President's Commission on Economy and Efficiency in the preparation of its outlines of the organization of the United States government.¹ They differ from those outlines, however, in that whereas the Commission's report showed only organization units, the presentation herein has been carried far enough to show the personnel embraced in each organization unit.

These outlines are of value not merely as an effective means of making known the organization of the several services. If kept revised to date by the services, they constitute exceedingly important tools of administration. They permit the directing personnel to see at a glance the organization and personnel at their disposition. They establish definitely the line of administrative authority and enable each employee to know his place in the system. They furnish the essential basis for making plans for determining costs by organization division and subdivision. They afford the data for a consideration of the problem of classifying and standardizing personnel and compensation. Collectively, they make it possible to determine the number and location of organization divisions of any particular kind, as, for example, laboratories, libraries, blue-print rooms, or any other kind of plant possessed by the national government, to what services they are

¹ House Doc. 458, 62d. Congress, 2nd Session, 1912—2 vols.

attached and where they are located, or to determine what services are maintaining stations at any city or point in the United States. The Institute hopes that upon the completion of the present series, it will be able to prepare a complete classified statement of the technical and other facilities at the disposal of the government. The present monographs will then furnish the details regarding the organization, equipment, and work of the institutions so listed and classified.

OUTLINE OF ORGANIZATION ALASKAN ENGINEERING COMMISSION DEPARTMENT OF THE INTERIOR

April 1, 1921

Organization Units: Classes of Employees

	NUMBER	ANNUAL SALARY RATE
1. President of the United States		
2. Secretary of the Interior		
Office of Washington Representative		
Senior Clerk	I	2,340
Clerk	I	1,500
Clerk ²	I	1,320
3. Alaskan Engineering Commission Proper		
1. General Administrative Offices ³		
Chairman and Chief Engineer	I	15,000
Assistant Chief Engineer	I	7,500
1. Office of Chief Clerk		
Chief Clerk	I	3,600
Special Inspector	I	2,700
Estimator	I	2,400
Clerk	I	2,400
Stenographer	I	2,400
"	I	1,800
"	I	1,320
Assistant Engineer and Inspector of Construction	I	3,000
Janitor and Mail Clerk	I	1,620
2. Photographer's Office		
Official Photographer	I	2,400
3. Telegraph and Telephone Department		
Superintendent	I	3,600
Assistant Superintendent	I	2,700
Accountant	I	2,280

² Detailed to Chief Clerk's office of the department, Miscellaneous division.

³ The administrative staff of the southern division is merged with the General Administrative Staff.

OUTLINE OF ORGANIZATION

69

Clerk	I	2,100
"	I	1,980
Chief Electrician	I	3,000
Radio Electrician	I	2,220
Foreman	I	2,700
"	I	2,460
"	I	2,400
Chief Telegraph Operator	I	2,280
Operator in Charge	I	2,280
Telephone and Telegraph Operator	I	1,980
Telegraph Operator	I	1,920
2. Southern Division		
1. Transportation Department		
Trainmaster	I	3,600
Dispatcher	2	3,000
Station Agent	2	2,160
" "	8	1,980
" "	I	1,800
Clerk	I	2,100
"	3	1,860
"	3	1,680
Warehouseman	2	1,860
Checker	2	1,680
Cold Storage Operator	I	2,160
Mail Clerk	I	2,700
Mail Carrier	I	2,400
" "	I	1,650
2. Mechanical Department		
Master Mechanic	I	3,600
" "	I	3,000
Traveling Engineer	I	3,060
Accountant	I	2,700
Clerk	2	1,680
"	2	1,500
Draftsman	I	2,280
General Foreman	I	2,700
Foreman Machine Shops	I	2,860
Foreman	I	2,400
Foreman Car Repair	I	2,700
Car Inspector	I	2,220
Hostler	I	1,920
3. Dock Department		
Receiving and Forwarding Agent	I	2,700
Commercial Freight Agent	I	2,340
Clerk	2	2,160
"	I	1,920
Timekeeper	I	2,160
Foreman	I	2,340
"	I	2,160
Checker	I	2,160
"	I	1,980
Wharfinger	I	2,220
4. Townsite Department		

ALASKAN ENGINEERING COMMISSION

Acting Manager	I	2,160
Stenographer	I	2,040
Clerk	I	1,800
Fire Chief	I	2,280
Foreman	I	2,160
5. Drafting Department		
Chief Draftsman	I	3,000
Draftsman	I	2,700
6. Hospital Department		
Chief Surgeon	I	4,200
Surgeon	I	2,400
Assistant Surgeon	I	3,000
" "	4	2,160
Surgeon Assistant	I	1,980
Field Surgeon	I	3,000
Steward	I	2,700
Matron	I	2,160
Nurse	3	1,860
"	I	1,440
Accountant	I	2,400
Clerk	I	1,800
7. Disbursing Office		
Special Disbursing Agent	I	3,600
Timekeeper	I	3,000
"	I	2,160
Clerk	I	1,740
"	I	1,500
"	I	1,380
8. Labor Department		
Employment Clerk	I	2,700
Clerk	I	2,400
"	2	1,800
Mail Carrier	I	1,800
9. Mining Department		
Supervisor of Coal Mining	I	9,000
Accountant	I	2,580
Storekeeper	I	2,220
Clerk	3	2,040
Stenographer	I	1,800
Assistant Engineer	I	3,000
Mine Surveyor	2	2,700
Instrumentman	I	2,100
Mine Foreman	I	3,240
" "	I	3,000
Foreman	I	2,340
"	I	2,100
Shift Boss	3	3,000
Carpenter Foreman	2	2,700
Warehouseman	I	1,800
10. Maintenance and Construction		
Engineer Maintenance and Construction and Maintenance of Way	I	5,000

OUTLINE OF ORGANIZATION

71

Assistant Bridge Engineer	I	3,500
Bridge Draftsman	I	3,000
Superintendents of Construction	2	4,200
Assistant Superintendent of Construction	I	2,700
Assistant Engineer	2	3,300
Resident Engineer	5	2,700
" "	I	2,520
" "	2	2,460
" "	I	2,280
Estimator	I	2,580
Instrumentman	10	2,100
"	I	1,860
"	I	1,800
Rodman	I	1,740
Chainman	I	1,620
"	I	1,440
Chief Clerk	I	2,700
Camp Auditor	I	2,400
Clerk	2	2,400
"	I	2,280
"	2	1,980
Timekeeper	10	2,160
"	3	2,040
"	I	1,980
Assistant Timekeeper	7	1,860
" "	2	1,680
" "	I	1,440
Warehouseman	I	2,160
Foreman	9	2,700
"	I	2,640
"	I	2,550
"	4	2,520
"	I	2,460
"	3	2,400
"	I	2,340
"	4	2,280
"	I	2,160
Assistant Foreman	I	2,280
Steam Shovel Foreman	I	2,700
Camp Foreman	I	1,980
Crane Foreman	I	1,920
Section Foreman	12	2,160
II Maintenance of Way		
Resident Engineer	I	2,280
Water Service Engineer	I	3,000
Roadmaster	I	3,000
Instrumentman	6	2,100
"	3	1,860
Chainman	I	1,620
Clerk	I	2,400
"	2	1,920

ALASKAN ENGINEERING COMMISSION

"	1	1,800
"	1	1,620
"	1	960
Stenographer	1	1,740
Warehouseman	1	2,040
Veterinary Surgeon	1	2,460
Timekeeper	7	2,160
"	1	2,100
"	4	2,040
"	2	1,980
Assistant Timekeeper	4	1,860
"	2	1,680
General Foreman	1	3,000
Foreman	12	2,700
"	5	2,520
"	2	2,460
"	5	2,400
"	9	2,280
"	5	2,220
"	3	2,160
"	2	1,980
"	1	1,800
Assistant Foreman	1	2,160
Crane Foreman	1	1,920
Section Foreman	35	2,160
"	5	1,980
3. Northern Division		
1. Office of Engineer in Charge		
Engineer in Charge	1	6,000
Secretary and File Clerk	1	2,340
2. Accounting Department		
Chief Accountant	1	3,240
Secretary and File Clerk	1	2,340
Accountant	1	2,520
Clerk	1	2,220
"	1	1,920
"	3	1,800
Shop Clerk	1	2,040
"	1	2,340
Stenographer Clerk	1	1,980
3. Time Keeping Department		
Chief Timekeeper	1	2,940
District Timekeeper	1	2,580
Timekeeper and Station Agent	1	2,340
Timekeeper	2	2,100
"	1	2,040
"	3	1,920
Clerk	1	2,400
"	1	1,920
"	1	1,800
4. Disbursing Agent's Office		
Special Disbursing Agent	1	3,140

OUTLINE OF ORGANIZATION

73

	Assistant Disbursing Agent	I	2,100
5.	Telegraph and Telephone Department		
	Wire Chief	I	2,640
	Telegraph Operator	I	2,220
	"	I	1,920
	"	2	1,440
6.	Hospital Department		
	Assistant Surgeon	2	3,120
	Surgeon Assistant	I	1,800
	Matron	I	1,560
	Nurse	3	1,380
7.	Store Department		
	General Storekeeper	I	3,240
	Receiving and Forwarding Agent	I	2,760
	Storekeeper	2	2,460
	Timekeeper and Stockkeeper	I	1,800
	Property Clerk	I	2,280
	Clerk	I	2,100
	"	I	2,040
	"	I	1,980
	"	I	1,800
	"	I	1,620
	Stenographer	I	1,980
	Head Checker	I	2,160
	Checker	I	2,100
8.	Mess House Department		
	Mess Clerk	I	1,360
9.	Transportation Department		
	Superintendent of Transportation	I	2,880
	Agent and Clerk	I	2,640
	Station Agent and Clerk	I	2,400
	Station Agent	I	2,340
10.	Townsite Department		
	Townsite Manager	I	2,640
	Fire Chief	I	2,340
11.	Mail Service		
	Superintendent of Mail Service	I	4,200
	Special Mail Carrier	I	2,040
12.	Maintenance and Operation Tanana Valley and Goldstream		
	Assistant Superintendent	I	3,600
	Assistant Engineer	I	3,120
	Resident Engineer	4	2,760
	Instrumentmen	5	2,220
	"	3	2,160
	Rodman	I	1,830
	Chainman	I	1,770
	Draftsman	I	2,580
	Estimator	I	1,830
4.	Supply Division		
	1. General Office		
	Engineer in Charge	I	6,000

ALASKAN ENGINEERING COMMISSION

Chief Clerk	I	2,700
Auditor	I	2,700
Accountant	I	2,100
Checker	I	1,980
Clerk	I	2,100
"	I	2,040
"	3	1,980
"	I	1,800
Stock Clerk	I	1,620
" "	I	1,440
" "	I	1,320
Foreman	I	3,750
Stenographer	I	1,800
"	I	1,440
Timekeeper	I	1,740
2. Stores Department		
General Storekeeper	I	3,300
Property Accountant	I	2,220
Accountant	I	2,520
"	I	2,100
Receiving and Forwarding Clerk	I	3,000
Receiving Clerk	I	1,920
District Storekeeper	I	2,400
Storekeepers	2	2,280
Assistant Storekeeper	I	2,100
Timekeeper	I	2,160
Property Clerk	I	2,160
Clerk	I	2,400
"	3	2,100
"	2	1,980
"	2	1,920
"	3	1,800
"	3	1,500
Stenographer	I	1,440
"	I	1,320
Warehouseman Foreman	I	2,160
" "	I	2,040
" "	I	1,860
" "	3	1,800
" "	2	1,740
" "	I	1,680
Foreman	I	2,280
Sub-Foreman	I	1,980
Checker	I	1,980
"	I	1,800
3. Material Yards		
Foreman	I	2,220
Crane Engineer	I	2,370
Crane Foremen	6	1,920
Special Teamster	I	2,160
5. Purchasing Division (Seattle)		
1. General Office		

OUTLINE OF ORGANIZATION

75

General Purchasing Agent	I	5,000
Chief Clerk	I	2,500
Secretary	I	1,800
Checker and Warehouseman	I	1,780
Employment Agent	I	2,400
File Clerk	I	1,400
Lumber Checker	I	1,500
Messenger	I	900
Stenographer	I	1,600
"	2	1,200
Clerk	I	1,980
Telephone Operator	I	240
2. Office of Special Disbursing Agent		
Special Disbursing Agent	I	3,300
Chief Clerk	I	2,100
Stenographer	I	1,320
6. Accounting Division		
1. General		
Examiner of Accounts and Legal Adviser	I	5,000
Chief Accountant	I	3,600
Accountant	I	3,000
"	I	2,520
"	I	2,400
"	I	2,280
"	I	2,160
"	I	2,100
Clerk	I	2,400
"	I	1,980
"	I	1,500
"	I	1,380
"	2	1,320
2. Auditor of Station Agents' Accounts		
Auditor of Station Accounts	I	3,000
Clerk	I	1,980
3. Bookkeeping		
Accountant	I	3,000
4. Coupon Accountant	I	2,400
5. Division Camp Auditors		
Accountant	I	2,700
Division Camp Auditor	I	2,640
" " "	I	2,520

APPENDIX 2

CLASSIFICATION OF ACTIVITIES

EXPLANATORY NOTE

The Classifications of Activities have for their purpose to list and classify in all practicable detail the specific activities engaged in by the several services of the national government. Such statements are of value from a number of standpoints. They furnish, in the first place, the most effective showing that can be made in brief compass of the character of work performed by the service to which they relate. Secondly, they lay the basis for a system of accounting and reporting that will permit the showing of total expenditures classified according to activities. Finally, taken collectively, they make possible the preparation of a general or consolidated statement of the activities of the government as a whole. Such a statement will reveal in detail, not only what the government is doing, but the services in which the work is being performed. For example, one class of activities that would probably appear in such a classification is that of "scientific research." A sub-head under this class would be "chemical research." Under this head would appear the specific lines of investigation under way and the services in which they were being prosecuted. It is hardly necessary to point out the value of such information in planning for future work and in considering the problem of the better distribution and coördination of the work of the government. The Institute contemplates attempting such a general listing and classification of the activities of the government upon the completion of the present series.

CLASSIFICATION OF ACTIVITIES

This classification of activities is an outline of the various activities which have been carried on by the commission from its appointment to date. In this case, a service is being considered that is temporary and meant for the execution of a definitive project.

- I. Activities preceding construction
 - I. General investigative activities
 1. A general survey of the alternative routes
 2. Examination of the three existing Alaskan railroads which had a direct bearing upon the routes to be considered
 3. Investigation of the resources of the country tributary to the proposed railroads in order to obtain some measure of the possible traffic
 4. Examination of the merits of various harbors in Alaska as locations for railroad terminals
 5. Preparation of cost estimates including a valuation of the Alaska Northern Railroad
 2. The placing and staking of the final location for the routes
2. Construction activities
 1. Construction of the railroad
 2. Construction of terminal facilities
 3. Construction of telegraph and telephone system
 4. Construction of wagon roads
3. Activities supplementary to construction
 1. Purchase and rehabilitation of the Alaska Northern Railroad
 2. Purchase and rehabilitation of the Tanana Valley Railroad
4. Operating activities
 1. Operation of railroad
 2. Operation of coal mines

3. Operation of telegraph and telephone lines
 4. Operation of docks
 5. Operation of power plant
 6. Operation of miscellaneous services
5. Maintenance
6. Activities aimed to create and encourage traffic for the railroad
1. Establishment, development and management of townsites
 2. Dissemination of information on resources of tributary country
 3. Effecting coöperation between farmers, merchants, and miners
 4. Administration of coal land leases

APPENDIX 3

PUBLICATIONS

Alaska Railroad Record (Weekly.) This paper was published as the official publication of the Alaskan Engineering Commission from November 14, 1916, to July 1, 1920, after which date it was discontinued by order of the Secretary of the Interior. The editor was the manager of the Land and Industrial Department, and the printing was done at Anchorage. The general aim of the paper was to give to the employees and to the general public weekly reports of the progress of construction and operation, but its prime value was in improving efficiency and establishing morale among a force scattered over a distance of 471 miles. It furnished also a convenient medium for distribution of official orders and circulars. The subscription price was \$1 per year, but the paper was issued free to Government departments, representatives of foreign governments, public libraries, and employees of the Alaskan Engineering Commission. Out of 1125 copies printed in July, 1919, there were only thirty paid subscriptions, while 160 were "free public" and 935 "official."

Annual Reports. Only two annual reports have been printed to date, one covering the period from March 12, 1914, to December 31, 1915, with maps in portfolio (64th Congress, 1st Session, House Doc. 610, Part 2) and one for the year 1916 (64th Congress, 2nd Session, Senate Doc. 741). Each of these reports, illustrated with photographs of scenes along the line of the railroad and sections of the railroad itself, includes a description of the work of the commission for the period covered, and an account of the general development of the territory tributary to the railroad during the year. The appendices include financial and cost statements, maps,

and statistics on Alaskan resources, trade, climate, etc. Copies of the 1914-15 report may be obtained from the Superintendent of Documents at 75 cents for both the text and maps. No copies of the 1916 report are available.

The reports for the years 1918 and 1919 are available in typewritten form at the Department of the Interior, and a copy of the 1917 report (also in typewritten form) is available in the files of the Secretary of the Senate. No provision was made by Congress for publication of these reports owing to the necessity for economy in printing.

APPENDIX 4

LAWS

(A) INDEX TO LAWS AND IMPORTANT EXECUTIVE ORDERS AND LETTERS

Authorization

President of United States

Authorized to locate, construct, and operate
railroads in the Territory of Alaska38 Stat. L., 305

Authority to construct and operate telegraph
and telephone lines, to withdraw and dis-
pose of public lands, etc.38 Stat. L., 305

Secretary of the Interior

Directed to proceed with survey of routesLetter of May 2,
1914

Directed to proceed with constructionLetter of Apr.
10, 1915

Alaskan Engineering Commission

Authorized to begin work of surveyLetter of May 8,
1914

Authorized to do construction under super-
vision of Secretary of InteriorLetters of April
10, and April
30, 1915

Isthmian Canal Commission

Authorized to deliver property and equipment
no longer needed at Panama to Alaskan
Engineering Commission38 Stat. L., 305
and Letter of
Apr. 10, 1915

Personnel

President of United States

To employ all necessary officers, agents, or
agencies and assign duties to them38 Stat. L., 305
81

82 ALASKAN ENGINEERING COMMISSION

- May detail officers in the Engineer Corps in the Army and Navy to perform service in Alaska 38 Stat. L., 305
- To detail Lt. Mears to service in connection with proposed railroad 38 Stat. L., 772
- May fix compensation of officers, agents, and employees 38 Stat. L., 305
- May transfer administration of Employees' Compensation Act so far as Commission's employees are concerned to Chairman of Commission 39 Stat. L., 750
- Urges system of compensation for injuries Letter of Apr. 10, 1915

Alaskan Engineering Commission

- Selection of its employees Letters of May 8, 1914, and April 10, 1915
- Record of appointments to be submitted to Secretary of Interior Letter of May 8, 1914
- Chairman of Commission to fix salaries of department heads Letter of Apr. 10, 1915
- Procedure in fixing salaries of officers and employees of departments Letter of Apr. 10, 1915
- Commission's employees not eligible for "additional compensation" { 40 Stat. L., 814, 1267
41 Stat. L., 689

Activities

- Location, construction, operation of railroads . 38 Stat. L., 305
- Telephone and Telegraph Lines 38 Stat. L., 305
- Townsites, withdrawal of public lands, etc. { 38 Stat. L., 305
Executive Order 2214, June 19, 1915
- Purchase of necessary property, terminals railroads, etc. 38 Stat. L., 305
Letters of Apr. 10 and 15, 1915

Sale of lots { Exec. of Order
June 19, 1915

Construction of docks, terminals, facilities,
wharves, etc. 38 Stat. L., 305

Purchase of Alaska Northern Railroad Letters of Apr.
10 and 15,
1915

Organization

General Control and administration by Pres-
ident 38 Stat. L., 305

Secretary of Interior

To appoint Chairman of Commission Letter of Apr.
10, 1915

To supervise construction by Commission Letter of Apr.
10, 1915

May grant leave of absence to Chairman Letter of Apr.
10, 1915

Alaskan Engineering Commission

Duties of Chairman and Commissioners Letter of Apr.
10, 1915

Chairman to create departments and appoint
heads Letter of Apr.
10, 1915

Department heads to report to Commissioner .. Letter of Apr.
10, 1915

Chairman may grant leave of absences to Com-
missioners Letter of Apr.
10, 1915

Commission to cooperate with duly constituted
authorities in Alaska Letter of Apr.
10, 1915

Expenditures and Appropriations

Cost of Project

Not to exceed \$35,000,000 38 Stat. L., 305

Additional \$17,000,000 authorized to be appro-
priated 41 Stat. L., 293

84 ALASKAN ENGINEERING COMMISSION

Miscellaneous Receipts

From sale of lands, coal, etc., to be paid into Treasury	38 Stat. L., 305
Disposition of net profits from operation of government mines, royalties, etc.	38 Stat. L., 744
Proceeds from sale of material, condemned property, etc., to be covered into appropriation	39 Stat. L., 306
Not to exceed 50 per cent of receipts from lot sales to be applied to reimbursement of Commission for town site improvement expenditures	40 Stat. L., 19
Sale of articles and supplies to employees	38 Stat. L., 1148
Expenditures under employees' compensation act' reimbursable	39 Stat. L., 750
Procedure in making contracts for construction and for purchase of supplies	Letters of Apr. 10 and 30, 1915
Procedure in sales of lots	Executive Order 2214, June 19, 1915

(B) COMPILATION OF LAWS

1914—Act of March 12, 1914 (38 Stat. L., 305)—An Act To authorize the President of the United States to locate, construct, and operate railroads in the Territory of Alaska, and for other purposes, as amended October 18, 1919 (41 Stat. L., 293).

[SEC. 1]. That the President of the United States is hereby empowered, authorized, and directed to adopt and use a name by which to designate the railroad or railroads and properties to be located, owned, acquired, or operated under the authority of this act; to employ such officers, agents, or agencies, in his discretion, as may be necessary to enable him to carry out the purposes of this act; to authorize and require such officers, agents, or agencies to perform any or all of the duties imposed upon him by the terms of this act; to detail and require any officer or officers in the Engineer Corps in the Army or Navy to perform service under this act; to fix the compensation of all officers, agents, or employees appointed or designated by him; to designate and cause to be located a route or routes for a line or lines of railroad in the Territory of Alaska not to exceed in the aggregate one thousand miles, to be so located as to connect

one or more of the open Pacific Ocean harbors on the southern coast of Alaska with the navigable waters in the interior of Alaska, and with a coal field or fields so as best to aid in the development of the agricultural and mineral or other resources of Alaska, and the settlement of the public lands therein, and so as to provide transportation of coal for the Army and Navy, transportation of troops, arms, munitions of war, the mails, and for other governmental and public uses, and for the transportation of passengers and property; to construct and build a railroad or railroads along such route or routes as he may so designate and locate with the necessary branch lines, feeders, sidings, switches, and spurs; to purchase or otherwise acquire all real and personal property necessary to carry out the purposes of this act; to exercise the power of eminent domain in acquiring property for such use which use is hereby declared to be a public use, by condemnation in the courts of Alaska in accordance with the laws now or hereafter in force there; to acquire rights of way, terminal grounds, and all other rights; to purchase or otherwise acquire all necessary equipment for the construction and operation of such railroad or railroads; to build or otherwise acquire docks, wharves, terminal facilities; and all structures needed for the equipment and operation of such railroad or railroads; to fix, change, or modify rates for the transportation of passengers and property, which rates shall be equal and uniform, but no free transportation or passes shall be permitted except that the provisions of the interstate commerce laws relating to the transportation of employees and their families shall be in force as to the lines constructed under this act; to receive compensation for the transportation of passengers and property, and to perform generally all the usual duties of a common carrier by railroad; to make and establish rules and regulations for the control and operation of said railroad or railroads; in his discretion, to lease the said railroad or railroads, or any portion thereof, including telegraph and telephone lines, after completion under such terms as he may deem proper, but no lease shall be for a longer period than twenty years, or in the event of failure to lease, to operate the same until the further action of Congress: *Provided*, That if said railroad or railroads including telegraph and telephone lines, are leased under the authority herein given, then and in that event they shall be operated under the jurisdiction and control of the provisions of the interstate commerce laws; to purchase, condemn, or otherwise acquire upon such terms as he may deem proper any other line or lines of railroad in Alaska which may be necessary to complete the construction of the line or lines of railroad designated or located by him: *Provided*, That the price to be paid in case of purchase shall in no case exceed the actual physical value of the railroad; to make contracts or agreements with any railroad or steamship company or vessel owner for joint transportation of passengers or property over the road or roads herein provided for, and such railroad or steamship line or by such vessel, and to make such other contracts as may be necessary to carry out any of the purposes of this act; to utilize in carrying on the work herein provided for any and all machinery, equipment, instruments, material, and other property of any sort whatsoever used or

acquired in connection with the construction of the Panama Canal, so far and as rapidly as the same is no longer needed at Panama, and the Isthmian Canal Commission is hereby authorized to deliver said property to such officers or persons as the President may designate, and to take credit therefor at such percentage of its original cost as the President may approve, but this amount shall not be charged against the fund provided for in this act.

The authority herein granted shall include the power to construct, maintain, and operate telegraph and telephone lines so far as they may be necessary or convenient in the construction and operation of the railroad or railroads as herein authorized and they shall perform generally all the usual duties of telegraph and telephone lines for hire.

That it is the intent and purpose of Congress through this act to authorize and empower the President of the United States, and he is hereby fully authorized and empowered, through such officers, agents, or agencies as he may appoint or employ to do all necessary acts and things in addition to those specially authorized in this act to enable him to accomplish the purposes and objects of this act.

The President is hereby authorized to withdraw, locate, and dispose of, under such rules and regulations as he may prescribe, such area or areas of the public domain along the line or lines of such proposed railroad or railroads for town-site purposes as he may from time to time designate.

Terminal and station grounds and rights of way through the lands of the United States in the Territory of Alaska are hereby granted for the construction of railroads, telegraph and telephone lines authorized by this act, and in all patents for lands hereafter taken up, entered or located in the Territory of Alaska there shall be expressed that there is reserved to the United States a right of way for the construction of railroads, telegraph and telephone lines to the extent of one hundred feet on either side of the center line of any such road and twenty-five feet on either side of the center line of any such telegraph or telephone lines, and the President may, in such manner as he deems advisable, make reservation of such lands as are or may be useful for furnishing materials for construction and for stations, terminals, docks, and for such other purposes in connection with the construction and operation of such railroad lines as he may deem necessary and desirable.

SEC. 2. That the cost of the work authorized by this act shall not exceed \$35,000,000, and in executing the authority granted by this act the President shall not expend nor obligate the United States to expend more than the said sum; and there is hereby appropriated, out of any money in the Treasury not otherwise appropriated, the sum of \$1,000,000 to be used for carrying out the provisions of this act, to continue available until expended.

Provided, That in order to complete on or before December 31, 1922, the construction and equipment of the railroad between Seward and Fairbanks, together with necessary sidings, spurs, and lateral branches, the additional sum of \$17,000,000 is hereby authorized to be appropriated, to be immediately and continuously available until expended. [Italicized as amended].

SEC. 3. That all moneys derived from the lease, sale, or disposal of any of the public lands, including town sites, in Alaska, or the coal or mineral therein contained, or the timber thereon, and the earnings of said railroad or railroads, together with the earnings of the telegraph and telephone lines constructed under this act, above maintenance charges and operating expenses, shall be paid into the Treasury of the United States as other miscellaneous receipts are paid, and a separate account thereof shall be kept and annually reported to Congress.

SEC. 4. That the officers, agents, or agencies placed in charge of the work by the President shall make to the President annually, and at such other periods as may be required by the President or by either House of Congress, full and complete reports of all their acts and doings and of all moneys received and expended in the construction of said work and in the operation of said work or works and in the performance of their duties in connection therewith. The annual reports herein provided for shall be by the President transmitted to Congress.

1914—Joint Resolution of May 13, 1914 (38 Stat. L., 772)—
Joint Resolution Authorizing the President to detail
Lieutenant Frederick Mears to service in connection
with proposed Alaskan railroad.

That the President of the United States be, and he is hereby, authorized to detail and require Lieutenant Frederick Mears, United States Army, to perform service in connection with the location and construction of the railroad or railroads in the Territory of Alaska, provided for in Act of Congress approved March twelfth, nineteen hundred and fourteen.

1914—Act of October 20, 1914 (38 Stat. L., 744)—An Act
To provide for the leasing of coal lands in the Ter-
ritory of Alaska, and for other purposes.

All net profits from operation of Government mines, and all royalties and rentals under leases as herein provided, shall be deposited in the Treasury of the United States in a separate and distinct fund to be applied to the reimbursement of the Government of the United States on account of any expenditures made in the construction of railroads in Alaska, and the excess shall be deposited in the fund known as The Alaska Fund, established by the Act of Congress of January twenty-seventh, nineteen hundred and five, to be expended as provided in said last-mentioned Act.

1915—Act of March 4, 1915 (38 Stat. L., 1148)—An Act
Making appropriations to supply deficiencies in ap-
propriations for the fiscal year nineteen hundred and
fifteen and for prior years, and for other purposes.

* * * *

Alaska Engineering Commission: In the execution of the work called for under the Act of March twelfth, nineteen hundred and fourteen, entitled "An Act to authorize the President of the United States to locate, construct, and operate railroads in the Territory of Alaska, and for other purposes," authority is hereby granted to purchase, until the end of the fiscal year nineteen hundred and sixteen, from the appropriations made therefor articles and supplies for sale to employees, the appropriation to be reimbursed by the proceeds of such sales.¹

1916—Act of July 1, 1916 (39 Stat. L., 306)—An Act Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and seventeen, and for other purposes:

* * * *

During the fiscal year nineteen hundred and seventeen there shall be covered into the appropriation established from time to time under the Act approved March twelfth, nineteen hundred and fourteen, entitled, "An Act to authorize the President of the United States to locate, construct, and operate railroads in the Territory of Alaska, and for other purposes," the proceeds of the sale of material utilized for temporary work and structures in connection with the operations under said Act, as well as the sales of all other condemned property which has been purchased or constructed under the provisions thereof, also any moneys refunded in connection with the construction and operations under said Act, and a report hereunder shall be made to Congress at the beginning of its next session.¹

Authority is granted to pay to Old Bettis, a native of Nenana, Alaska, the sum of \$343.50, out of the appropriation for the Alaska Engineering Commission in compensation for a cabin with its contents consisting of traps, guns, clothing, and other articles, which were burned as a result of a fire running from a smudge set by parties of the Alaskan Engineering Commission during the summer of nineteen hundred and fourteen.

1916—Act of September 7, 1916 (39 Stat. L., 750)—An Act To provide compensation for employees of the United States suffering injuries while in the performance of their duties, and for other purposes.

* * * *

¹ This clause has been included in all subsequent appropriation acts.

SEC. 42. That the President may, from time to time, transfer the administration of this Act . . . so far as employees of the Alaskan Engineering Commission are concerned to the Chairman of that commission, in which cases the words "commission" and "its" wherever they appear in this Act shall, so far as necessary to give effect to such transfer, be read . . . "chairman of the Alaskan Engineering Commission," . . . and "his"; and the expenses of medical examinations under sections twenty-one and twenty-two, and the reasonable traveling and other expenses and loss of wages payable to employees under section twenty-one, shall be paid out of appropriations . . . for the Alaskan Engineering Commission instead of out of the appropriation for the work of the commission. . . .

The President may authorize the chairman of the Alaskan Engineering Commission to pay the compensation provided by this Act, including the medical, surgical, and hospital services and supplies provided by section nine and the transportation and burial expenses provided by sections nine and eleven, out of the appropriations for . . . the Alaskan Engineering Commission, such appropriations to be reimbursed for such payments by transfer of funds from the employees' compensation fund.

1917—Act of April 17, 1917 (40 Stat. L., 19)—An Act
Making appropriations to supply deficiencies in appropriations for the fiscal year ending June 30, 1917, and prior fiscal years, and for other purposes.

* * * *

That until June 30, 1918, not to exceed 50 per centum of the moneys received from the sale of lots or tracts within any town site or townsites heretofore or hereafter sold pursuant to the provisions of the act of March 12, 1914, entitled "An Act to authorize the President of the United States to locate, construct, and operate railroads in the Territory of Alaska, and for other purposes," may, in the discretion of the Secretary of the Interior, be set apart and expended within the respective townsites in which such lots or tracts are sold, for the purpose of preparing the land for occupancy, the construction, installation, and maintenance of public utilities and improvements, and the construction of public-school buildings, under such terms and conditions as the Secretary of the Interior may prescribe, and the moneys so set apart and designated are appropriated for the purpose of carrying these provisions into effect; *Provided*, That such moneys as may have been heretofore or may hereafter be expended for such purposes under and by authority of the Alaskan Engineering Commission from the funds at its disposal shall be reimbursed from the amount designated for the purposes herein provided: *Provided, further*, That a report of the expenditures hereunder shall be made to Congress at the beginning of each regular session.

1920—Act of May 29, 1920 (41 Stat. L., 689)—An Act

Making appropriations for the legislative, executive, and judicial expenses of the Government for the fiscal year ending June 30, 1921, and for other purposes.

* * * *

That all civilian employees of the Governments of the United States and the District of Columbia who receive a total of compensation at the rate of \$2500 per annum or less . . . shall receive during the fiscal year ending June 30, 1921, additional compensation at the rate of \$240 per annum.

The provisions of this section shall not apply to . . . employees of the Alaskan Engineering Commission.²

(C) IMPORTANT EXECUTIVE ORDERS AND LETTERS

1914—Letter of May 2, 1914—President to Secretary of the Interior.

Pursuant to the provisions of the act approved March 12, 1914, providing for the construction and operation of railroads in the Territory of Alaska, I hereby direct you to proceed with the surveying of routes for said railroads and confer upon you the power and authority to do any and all acts necessary thereto.

1914—Letter of May 8, 1914—Secretary of the Interior to Alaskan Engineering Commission.

Agreeable to the wishes of the President, and by his direction, I take this occasion to formally authorize the Alaskan Engineering Commission to select and appoint its assistants for the work in hand, to purchase the necessary supplies and equipment, to order travel and subsistence for all employees of the commission, and to proceed to the field at the earliest practicable date. I desire that a record of appointments or employments made by the commission be furnished this office, in order that a complete service record may be maintained here.

1915—Executive Order of April 10, 1915.

By authority of an act entitled "An act to authorize the President of the United States to locate, construct, and operate railroads in the Territory of Alaska, and for other purposes" (38 Stat., 305), I do now designate and cause to be located the following routes for lines of railroad in the Territory of Alaska:

For a main line of railroad:

² This clause, excluding employees of the Commission from benefit of the "additional compensation," appears in two previous appropriation acts also (40 Stat. L., 814, 1267).

Commencing at the town of Seward, on the westerly shore of Resurrection Bay, Alaska; thence following along said westerly shore in a northerly direction to the head of said bay; thence following up the drainage of Salmon Creek to a summit between said drainage and the drainage of Snow River; thence following the drainage of Snow River to Kenai Lake; thence continuing northerly along the easterly shore of Kenai Lake, along Falls Creek, along the shores of Lower and Upper Trail Lake, and up Trail Creek to a summit in the Kenai Mountains near mile 45 from Seward; thence descending along the drainage of Placer River to the head of Turnagain Arm of Cook Inlet; thence following the northeasterly shore of said Turnagain Arm and crossing Portage Creek and Twenty-Mile River to the mouth of Kern Creek near mile 71 from Seward; thence in a northwesterly direction along the shore of Turnagain Arm to near the mouth of Big Rabbit Creek; thence leaving Turnagain Arm and running northerly to a summit in section 26, township 14, north range 3 west, Seward meridian; thence running northeasterly to near the head of Knik Arm of Cook Inlet; thence running northerly across the flats at the head of said arm and crossing Knik and Matanuska Rivers to a point about 2 miles north of the Matanuska River; thence running in a westerly and northwesterly direction, crossing the Little Susitna River and following along the southwesterly slopes of Bald Mountain to Willow Creek, a tributary of the Susitna River; thence in a northerly direction following the drainage of the Susitna and Chulitna Rivers to Broad Pass, situated in the main Alaska Range of mountains; thence crossing Broad Pass and entering the drainage of the Nenana River; thence continuing northward following the drainage of the Nenana River to the Tanana River, the total distance from Seward being 416 miles, more or less.

Also starting from a point on the above-described line, situated 2 miles, more or less, northerly from where said line crosses the Matanuska River, and thence running in an easterly direction following the drainage of said Matanuska River and its tributaries, a distance of 38 miles, more or less, to the Matanuska coal fields.

And in order to complete the construction of the lines so designated and located, I direct the Secretary of the Interior to purchase and acquire the line of railroad known as the Alaska Northern Railway, and for that purpose to execute and enter into an agreement substantially in the form hereto annexed, which calls for the payment of a purchase price not in excess of the physical value of said railway.

Effective this date, April 10, 1915.

1915—Letter of April 10, 1915—President to Secretary of the Interior.

Pursuant to the provisions of the act of March 12, 1914, providing for the construction of railroads in the Territory of Alaska, I direct you to proceed with the construction of the routes now located, and I confer upon you the power and authority to do any and all acts necessary thereto.

This work will, under your supervision, be carried on by the Alaskan Engineering Commission.

The commission is henceforth charged with (the general duty of preparing and adopting plans for construction), with (the employment of such force as may be from time to time necessary), and with (the making of all contracts for the purchase of the necessary supplies and plant for this work).

For the proper prosecution of the work you will designate one of the members of the commission its chairman, who shall be in immediate charge of the work in Alaska and have power of approval or disapproval of all administrative matters connected with the work in Alaska. He shall organize the work into such departments as seem advisable. Each department shall perform such duties as may from time to time be assigned to it by the chairman. Among such departments shall be a department of construction and engineering, which may be subdivided into divisions in the discretion of the chairman, who will also be the chief engineer. The heads of the several departments shall be appointed by and report to the chairman, and their salaries, except where such heads of departments are members of the commission, shall be fixed by him, subject to the disapproval of the commission as a whole. Officers and employees in the several departments shall be appointed and their salaries primarily fixed by the head of the department by which they are engaged, after consultation with the chairman and subject to the disapproval of the commission.

Contracts for the purchase of supplies shall be made only after public advertisement in one or more newspapers of general circulation in the district where such supplies may, in the judgment of the chairman, best be purchased, and shall be awarded to the lowest responsible bidder, excepting in cases of emergency, when, with the consent or approval of the Secretary of the Interior, advertising may be dispensed with.

In making contracts for construction work, so far as may be, competitive bids shall be secured by invitation or advertisement when practicable. So far as the work may be carried on by the letting of contracts to station men, competitive bids shall be secured by invitation on the ground where the work is to be carried on, but in such manner that the work of construction as a whole may be expedited.

The head of each department shall make a report of the work and operation of his department to the chairman of the commission as often as may be required. The Secretary of the Interior shall make to the President a report, at least annually, and as often as he may deem advisable or the President may require.

The chairman of the commission shall make a report to the Secretary of the Interior, setting forth the results accomplished by each department of the work, as often as he may deem advisable or the Secretary may require.

The members of the commission shall proceed to the Territory of Alaska and remain there at least until October 1, except when on leave of absence, which will be granted to the members of the commission by the chairman, and to the chairman by the Secretary of

the Interior. In case of absence from the Territory, the chairman will designate a member of the commission to act in his stead.

If there shall be any machinery, equipment, instruments, material or other property of any sort required in connection with the construction of the Isthmian Canal which is desired by the Alaskan Engineering Commission for use in the construction of the routes designated in Alaska, the Alaskan Engineering Commission will, by its chairman or any members, request the same from the governor of the Isthmian Canal, and he will, so far as and as rapidly as the same is no longer needed at Panama, deliver said property to such officers or persons as the Alaskan Engineering Commission by its chairman or a member may designate.

Under the contract which I have authorized for the purchase of the Alaska Northern Railway you will, on being advised by counsel to the commission as to the title to be acquired, give the notices therein required, make the initial payment, and take over control of the railway and, so far as may be advisable, use the same in the construction work. So far as it may be become necessary to spend moneys upon the Alaska Northern Railway for construction, you will advance such moneys to the railway from the funds appropriated under the act of March 12, 1914. The immediate conduct of the affairs of the railway will be in the hands of the commission, and the chairman of the commission may become president of the railway.

The commission will coöperate with the duly constituted authorities of Alaska in the preservation of law and order during the work of construction.

I charge the commission particularly with the preparation and maintenance of such arrangements as may be required for the health of the men engaged in the work of construction and I instruct you to prepare and adopt a proper system of compensation for accidents which may occur on the work, in general on the lines of the system now in force in the construction of the Isthmian Canal, but such system shall be so framed that its benefits will be applicable not only to those who are directly in the service of the commission upon salary, but also to those who may, by contract with the commission, be actually engaged in the work of construction in Alaska.

Effective this date, April 10, 1915.

1915—Letter of April 30, 1915—President to Secretary of the Interior.

By virtue of the authority vested in me by the act of Congress approved March 12, 1914, entitled "An act to authorize the President of the United States to locate, construct, and operate railroads in the Territory of Alaska, and for other purposes," I hereby direct that (all work of the Alaskan Engineering Commission under all orders made by me and the carrying out of all contracts entered into by my direction under authority of said act, be performed under the supervision and control of the Department of the Interior, as directed by the head thereof, in all respects and to all intents and purposes the same as if said work had been placed by law under

the jurisdiction and control of the Department of the Interior.)

I also direct that contracts for the purchase of supplies by the Alaskan Engineering Commission shall be made after advertisement in such manner as shall best serve the interests of the Government, in the district of Alaska, or otherwise, where such supplies may, in the judgment of the chairman of the commission, best be purchased and shall be awarded to the lowest responsible bidder.

Except so far as they are inconsistent with and changed by this order, I direct that the Executive orders of April 10, 1915, continue in force.

April 30, 1915.

1915—Executive Order of June 19, 1915.

Under and pursuant to the provisions of the act of Congress approved March 12, 1914 (38 Stat., 305), entitled "An act to authorize the President of the United States to locate, construct, and operate railroads in the Territory of Alaska, and for other purposes," it is hereby ordered that the administration of that portion of said act relating to the withdrawal, location, and disposition of town sites shall be in accordance with the following regulations and provisions, to wit:

REGULATIONS.

Reservations.—The Alaskan Engineering Commission will file with the Secretary of the Interior, when deemed necessary, its recommendations for the reservation of such areas as in its opinion may be needed for townsite purposes. The Secretary of the Interior will thereupon transmit such recommendations to the President with his objections thereto or concurrence therewith. If approved by the President, the reservation will be made by Executive order.

Survey.—When in the opinion of the President the public interests require a survey of any such reservation, the Secretary of the Interior shall cause to be set aside such portions for railroad purposes as may be selected by the Alaskan Engineering Commission, and cause the remainder, or a part thereof, to be surveyed into urban or suburban blocks and lots of suitable size, and into reservations for parks, schools, and other public purposes and for Government use. Highways should be laid out, where practicable, all along shore lines, and sufficient land for dock and wharf purposes along such shore lines should be reserved in such places as there is any apparent necessity therefor. The plats of such survey will be prepared in triplicate, one for the General Land Office to be on tracing linen, one for the local land office, and one for the recorder of the proper recording district. The survey will be made under the supervision of the Commissioner of the General Land Office and the plats will be approved by him and by the chairman of the Alaskan Engineering Commission.

Public sale.—The unreserved lots will be offered at public outcry to the highest bidder at such time and place and after such publication of notice, if any, as the Secretary of the Interior may direct, and he may appoint or detail some suitable person as superintendent

of the sale to supervise the same and may fix his compensation and require him to give sufficient bond.

Superintendent's authority.—Under the supervision of the Secretary of the Interior, the superintendent of the sale will be, and he is hereby authorized to make all appraisements of lots and at any time to reappraise any lot which in his judgment is not appraised at the proper amount or to fix a minimum price for any lot below which it may not be sold, and he may reject any and all bids for any lot and at any time suspend, adjourn, or postpone the sale of any lot or lots to such time and place as he may deem proper.

Manner.—Bids may be made either in person or by agent, but not by mail nor at any time or place other than the time and place when the lots are offered for sale hereunder, and any person may purchase any number of lots for which he is the highest bidder. Bidders will not be required to show any qualifications as to age, citizenship, or otherwise. If any successful bidder fails to make the payment and file the application and other papers at the time and in the manner hereinafter required, the lot awarded to him may be reoffered for sale, and his right thereto will be forfeited. Nothing herein will prevent the transfer by deed of the interests secured by the purchase and the partial payment for the lot, but the assignee will acquire no greater right than that of the original purchaser, and the final entry and patent will issue to the original purchaser when all payments are made.

No lot will be sold for less than \$25, and no bid exceeding that amount will be accepted unless made in multiples of \$5; the minimum of \$25 on each lot sold for less than \$75 must be paid in cash within the time hereinafter specified, and if the price bid is \$75 or more one-third of the bid price must be paid in cash within said specified time; the remainder of the purchase price will be divided into five equal annual installments, payable in one, two, three, four, and five years, respectively, from the date of the register's certificate of sale; and no final certificate of entry will be issued until the expiration of said five years and until payment has been made in full for the lot, and no patent will be issued thereon during said period. The successful bidder will be given by the superintendent of sale a memorandum certificate for identification purposes, showing name and address of bidder, lot, and the amount of bid, and the bidder must file it with the superintendent of sale before the close of the next succeeding sale day, or the next business day if bid is accepted on last sale day, together with his application to purchase the lot properly filled, signed, and acknowledged before any officer authorized to administer oaths and using an official seal, and accompanied by the cash payment required by these regulations, all on the forms attached hereto respectively, and hereby approved and made a part of these regulations.

The superintendent of sale will issue a memorandum receipt to the bidder for the money paid, describing the lot purchased, and he will as soon thereafter as possible deposit with the receiver of the proper local land office the money received, and file with its officers the papers deposited with him by said bidder, together with his

certificate as to successful bidder. Thereupon, if no objection appears, the register will issue his certificate of sale in duplicate and transmit the duplicate copy to said bidder.

If it be deemed advisable, the Commissioner of the General Land Office may direct the receiver of public moneys of the proper district to attend sales herein provided for, in which event the cash payment required shall be paid to said receiver who will issue his official receipt therefor in lieu of the memorandum receipt of the superintendent of sale.

Conditions and forfeitures.—If any lot or lots sold or any part thereof shall be used for the purpose of manufacturing, selling, or otherwise disposing of intoxicating liquors as a beverage or for gambling, prostitution, or any unlawful purpose before final payment is made and during a period of five years from the date of register's certificate of sale, or if the purchaser shall fail during said period to comply with any and all regulations and requirements which the Secretary of the Interior, in his discretion, may make or authorize to be made for the improvement of streets, sidewalks, and alleys, promotion of sanitation and fire protection in the town site, all rights of the applicant under his purchase of said lot or lots shall terminate and a forfeiture thereof and of the payments theretofore made thereon may be declared by the Secretary of the Interior, and his finding of fact thereon shall be final. If any person who has made partial payment on the lot purchased by him fails to make any succeeding payment required under these regulations at the date such payments become due, the money deposited by such person for such lot will be forfeited and the lot, after forfeiture is declared, will be subject to disposition as provided herein. Lots remaining unsold at the close of sale, or thereafter declared forfeited for nonpayment of any part of the purchase price under the terms of the sale, will be subject to future disposition at public sale at such time and place as may thereafter be provided.

Warning.—All persons are warned against forming any combination or agreement which will prevent any lot from selling advantageously, or which will in any way hinder or embarrass the sale, and all persons so offending will be prosecuted under section 2373 of the Revised Statutes of the United States, which reads as follows:

Every person who, before or at the time of the public sale of any of the lands of the United States, bargains, contracts, or agrees, or attempts to bargain, contract, or agree, with any other person, that the last-named person shall not bid upon or purchase the land so offered for sale, or any parcel thereof, or who by intimidation or unfair management hinders or prevents, or attempts to hinder or prevent, any person from bidding upon or purchasing any tract of and so offered for sale, shall be fined not more than \$1000 or imprisonment not more than two years, or both.^a

^a In addition to the above, a number of Executive Orders have been issued from time to time relating to medical treatment of employees, administration of a system of workmens' compensation, withdrawal of land for townsite purposes, etc.

APPENDIX 5

FINANCIAL STATEMENTS

EXPLANATORY NOTE

Statements showing appropriations, receipts, expenditures and other financial data for a series of years constitute the most effective single means of exhibiting the growth and development of a service. Due to the fact that Congress has adopted no uniform plan of appropriations for the several services and that the latter employ no uniform plan in respect to the recording and reporting of their receipts and expenditures, it is impossible to represent data of this character according to any standard scheme of presentation. In the case of some services the administrative reports contain tables showing financial conditions and operations of the service in considerable detail; in others, financial data are almost wholly lacking. Careful study has in all cases been made of such data as are available, and the effort has been made to present the results in such a form as will exhibit the financial operations of the service in the most effective way that circumstances permit.

Appropriations to the Alaskan Engineering Commission are made under the Act of March 12, 1914 (38 Stat. L., 305), authorizing the construction of the Alaskan Railroad and under the provisions of the subsequent amendments (41 Stat. L., 293). In the following table they are listed as of the year they are made. In all cases appropriations are available until expended. The figures showing costs apply equally to the disbursements of the Commission, with the exception of \$329,426.68, the cost of equipment transferred from Panama, and \$422,879.18, depreciation costs, a total of \$772,305.86, which amounts arise from book charges only not requiring disbursements of funds.

98 ALASKAN ENGINEERING COMMISSION

ALASKAN ENGINEERING COMMISSION

* Appropriations to March 4, 1921

Year Made	Construction and Operation of Railroads in Alaska
1914	\$1,000,000.00
1915	2,000,000.00
1916	8,247,620.00
1917	14,500,000.00
1918	5,250,000.00
1919	10,002,380.00
1920	7,000,000.00
* 1921	4,000,000.00
	<u>\$52,000,000.00</u>

* Data from Digest of Appropriations.

a Sundry Civil Appropriation Act, March 4, 1921.

Expenditures * United States Government Alaska Railroad; Showing Total Cost to October 31, 1920, and Estimated Total Cost on Completion

Object	Total Cost to October 31, 1920	Estimated Cost to Complete	Estimated Total Cost
Construction of Line.....	a\$29,589,107.69	\$10,337,530.82	\$39,926,638.51
Terminals	2,327,926.99	.....	2,327,926.99
Equipment	b3,113,134.58	201,021.00	3,314,155.58
Headquarters and General	573,610.55	208,576.44	782,186.99
Maintenance and Operation	2,538,456.93	3,777,910.68	6,316,367.61
Preliminary Surveys 1914-15....	425,576.29	.....	425,576.29
Examinations Controller Bay ...	5,961.00	.....	5,961.00
Coal Mine Improvements .....	.....	472,000.00	472,000.00
Saw Mills and Gravel Pits.....	112,704.43	.....	112,704.43
Materials and Supplies on Hand.	3,352,434.16	c2,352,434.16	1,000,000.00
Miscellaneous Physical Property..	769,962.73	.....	769,962.73
Accounts Receivable and Sundries	69,728.55	c69,728.55	.....
Totals	\$42,878,603.90	\$12,574,876.23	\$55,453,480.13

* Data from House Hearings 1920, and Sundry Civil Appropriation Bill for 1922, page 1926.

a Includes \$1,157,839.49, cost of purchase of Alaska Northern Railroad, and \$457,532.12, cost of purchase and rehabilitation of the Tanana Valley Railroad.

b Includes cost of equipment transferred from Panama amounting to \$329,426.68.

c Decrease.

APPENDIX 6

BIBLIOGRAPHY ¹

EXPLANATORY NOTE

The bibliographies appended to the several monographs aim to list only those works which deal directly with the services to which they relate, their history, activities, organization, methods of business, problems, etc. They are intended primarily to meet the needs of those persons who desire to make a further study of the services from an administrative standpoint. They thus do not include the titles of publications of the services themselves, except in so far as they treat of the services, their work and problems. Nor do they include books or articles dealing merely with technical features other than administrative of the work of the services. In a few cases explanatory notes have been appended where it was thought they would aid in making known the character or value of the publication to which they relate.

After the completion of the series the bibliographies may be assembled and separately published as a bibliography of the Administrative Branch of the National Government.

ALASKAN ENGINEERING COMMISSION

BIBLIOGRAPHIES

U. S. *Alaska railroad commission*. Publications relating to transportation and railway routes in Alaska. (*In its Railway routes in Alaska*. Washington, 1913. p. 167-72.)

[“The Commission . . . made use of a large number of reports, articles, and maps relating to the resources, commerce, climate and population of Alaska, as well as those dealing more specifically with the different railway routes. The above list presents the most important of these.”]

¹ Compiled by M. Alice Matthews.

- *Superintendent of documents.* Alaska; list of public documents for sale by the superintendent of documents, Washington, D. C. [Washington, Govt. print. off.] 1916. 32 p. (Price list 60-2d ed.)
- — — Alaska; list of publications relating to above subject for sale by superintendent of documents, Washington, D. C. [Washington, Govt. print. off.] 1917. 28 p. (Price list 60-3d ed.)
- — — United States public documents relating to non-contiguous territory and to Cuba. For sale by the superintendent of documents, Washington, D. C. Washington, Govt. print. off. [1910] 102p. (Price list 32)

OFFICIAL PUBLICATIONS

Alaska (*Ter.*) *Governor.* Reports of the Governor . . . 1885—Washington, Govt. print. off., 1885—

[Nearly all of these reports have paragraphs or chapters dealing with transportation problems in Alaska]

Brooks, Alfred H. Railway routes from the Pacific seaboard to Fairbanks. (*In U. S. Geological survey.* Bulletin 520. Washington, 1912. p. 45-88)

[Includes description of government publications and records relating to railway routes]

— Transportation [in Alaska] (*In U. S. Geological survey.* Bulletin no. 284, p. 10-17; no. 379, p. 23-6; no. 442, p. 23-31; no. 480, p. 23-4)

The first article is entitled "Railway Routes."

Data relating to Alaska. Information relating to the commercial and productive importance of . . . Alaska . . . from the time of its purchase from Russia in 1867. Washington, Govt. print. off., 1912. 19 p. 62d Cong., 2d sess. Senate. Doc. no. 882) Serial 6178.

Edes, William C. Construction of railroads in Alaska. Statement of Mr. William C. Edes, chairman Alaskan engineering commission, accompanied by Mr. Lee R. Wilson.

BIBLIOGRAPHY

UNIV. OF
CALIFORNIA

(*In U. S. Congress. House. Committee on appropriations.*
Further urgent deficiency bill, 1916. Hearing . . . Wash-
ington, 1916. p. 131-62)

[Asking an emergency appropriation of \$2,000,000 for railroad
construction work in Alaska]

Fisher, Walter L. Alaskan coal problems, by Walter L.
Fisher, Secretary of the interior. Washington, Govt. print.
off., 1912. 32 p. (U. S. *Bureau of mines.* Bulletin 36)

["The accompanying address, in slightly different form, was de-
livered before the American Mining Congress at Chicago, Ill. on
Oct. 27, 1911. It embodies, in addition to the results of the Sec-
retary's personal examinations in Alaska, results of investiga-
tions conducted by the director and certain engineers of the Bureau
of Mines during the summer of 1911, and of more extensive
investigations, covering several years, made by geologists of the
Alaska Division of the United States Geological Survey."]

Lane, Franklin K. Alaskan railroad. Statement of Hon.
Franklin K. Lane, Secretary of the interior. (*In U. S.*
Congress. House. Committee on appropriations. Further
urgent deficiency bill, 1916. Hearing . . . Washington,
1916. p. 162-7)

Richardson, W. P. Railroad construction in Alaska. Letter
from the Secretary of war transmitting a memorandum
prepared by Maj. W. P. Richardson . . . president of the
Board of road commissioners of Alaska, containing data
and recommendation relative to railroad construction in the
district of Alaska. [Washington, Govt. print. off., 1906]
8 p. (59th Cong., 1st sess. Senate. Doc. no. 167) Serial
4912.

U. S. *Alaska railroad commission.* Railway routes in Alaska.
Message from the President of the United States transmit-
ting report of Alaska railroad commission . . . Washing-
ton [Govt. print. off.] 1913. 172 p. fold. maps. (62d
Cong., 3d sess. House. Doc. 1346) Serial 6484-5.

"Message" is pub. also separately (with same document
number) as "Transportation in Alaska."

— *Alaskan engineering commission.* Alaska railroad

ALASKAN ENGINEERING COMMISSION

record. v.1- Nov. 14, 1916- Anchorage, 1916-

[Official publication of the Alaskan engineering commission. "The purpose of the Alaska railroad record is to furnish each week in a concise form current information concerning the operation and construction of the Government railway system in Alaska."]

— — — Alaskan engineering commission . . . Reports
1914-15—Washington, Gov. print. off., 1916-

[The Alaskan Engineering Commission, appointed to investigate the available routes for the government railroads of Alaska, was directed by President Wilson to work under the Department of the Interior. The first report, issued as House Doc. 610, pt. 2, 64th Cong., 1st sess., includes general information on climate and mineral resources of the routes surveyed from the coast to interior, text of Railroad Act, etc.]

— *Congress. House of representatives.* Alaskan railroad bill. Debate on H. R. 1739 to authorize the President of the United States to locate, construct and operate railroads in the Territory of Alaska. Dec. 17, 1913, Jan. 21, 28, and Feb. 5 and 18, 1914. (*In Congressional record for dates mentioned*) Speeches of Representatives Brumbaugh, Scott, Curry, Switzer, Anderson, Lenroot, Ansberry, La Follette, Reilly, Saunders and others.

[At the close of the debate of Feb. 18, 1914, the bill authorizing the government railroad for Alaska was passed by a vote of 231 to 107]

U. S. *Congress. Conference committees, 1913-14.* Railroads in Alaska. Mar. 4 [and 5] 1914. Conference report. To accompany S. 48. [Washington, Govt. print. off., 1914] 6 p. (63d Cong. 2d sess. House. Rept. no. 337) Serial 6558.

Issued also as House report no. 341.

— — — *Committee on public lands.* Government railroad in Alaska. Hearing . . . on S. 4844, bill to provide for the construction and operation of a railroad in Alaska and for other purposes . . . [May 22, 1912] Washington, Govt. print. off., 1912. 39 p.

— — — — — Hearings . . . Jan. 27 and 30, 1911, on H. R. 32080. To provide for the leasing of coal lands in

- the district of Alaska and for other purposes. Washington, Govt. print. off., 1911. 99 p.
- — — *Committee on the territories.* The Alaska central railway. [Hearing, Jan. 26, 1909. Washington, Govt. print. off., 1909] 3 p.
- Statement of Charles J. Kappler.
- — — — — Alaska coal lands. Hearings . . . on Alaska coal lands. no. 1-7. Feb. 3-19, 1913. Washington, Govt. print. off., 1913. 7 pam.
- — — — — The Alaska northern railway. Hearing . . . on H. R. 27017, a bill to extend the time for the completion of the Alaska northern railway, and for other purposes. Statements of George H. Patrick and W. J. Boland, Jan. 20, 1913. Washington, Govt. print. off., 1913. 29 p.
- — — — — Alaska northern railroad. Hearing . . . on the extension of time for completion of the Alaska northern railroad. Statement . . . by Mr. George H. Patrick, Feb. 5, 1913. Washington, Govt. print. off., 1913. 27 p.
- — — — — Alaska northern railroad. Hearings . . . on H. R. 27017 and H. R. 28731, extension of time for completion of the Alaska northern railroad. Statements of Hon. Walter L. Fisher, Hon. James Wickersham, Mr. W. J. Boland, and Mr. George H. Patrick, Feb. 4 and 13, 1913. Washington, Govt. print. off., 1913. p. 29-44.
- — — — — The Alaska Pacific railway and terminal company. [Hearing] H. R. 12905 and S. 4351. March 2 and 3, 1908. Sixtieth Congress. First session. Washington, Govt. print. off., 1908. 23 p.
- — — — — The Alaska Pacific railway and terminal company [Hearing on] H. R. 25553, January 12, 14, and 26, 1909 . . . Washington, Govt. print. off., 1909. 81 p.
- U. S. Congress. House. Committee on the territories. Alaska short line railroad in Alaska. Statements of Mr. R. S. Ryan, Mr. Arnold Scheuer, and Hon. James Wickersham, April 1, 1910. Washington, Govt. print. off., 1910. 12 p.

- — — The building of railroads in Alaska.
Hearings . . . on bills H. R. 1739, H. R. 1806 and H. R. 2145 . . . July 9—[Sept. 20, 1913] Washington, Govt. print. off., 1913. 9 pts.
Statements of James Wickersham, Falcon Joslin, John E. Ballaine, Richard S. Ryan, D. A. M'Kenzie and George H. Patrick.
- — — The building of railroads in Alaska.
Hearings . . . on bills H. R. 1739, H. R. 1806, and H. R. 2145. Report of Clement Brumbaugh, Sept. 25, 1913 . . . Washington, Govt. print. off., 1913. 7 p.
Relates to the coal fields of Alaska.
- — — The building of railroads in Alaska.
Hearings . . . on bills H. R. 1739, H. R. 1806 and H. R. 2145. Report of C. F. Curry, Sept. 24, 1913. Washington, Govt. print. off., 1913. 24 p.
- — — The building of railroads in Alaska.
Hearings . . . on bills H. R. 1739, H. R. 1806 and H. R. 2145. Report of Frank E. Guernsey. Nov. 1, 1913 . . . Washington, Govt. print. off., 1913. 10 p.
- — — Construction of Alaska railroad. Hearings . . . on H. R. 7417, authorizing the appropriation of the sum of \$17,000,000 in addition to the sum of \$35,000,000 heretofore authorized . . . for the construction of a railroad in Alaska between Seward and Fairbanks . . . July 23, 24, 25, and 31, 1919. Washington, Govt. print. off., 1919. 201 p.
- — — Construction of Alaskan railroad . . .
Report to accompany H. R. 7417. [Washington, Govt. print. off., 1919] 6 p. (66th Cong., 1st sess. House. Rept. 231.) Serial 7593.
- — — Construction of railroads in Alaska . . .
Report and minority views. To accompany H. R. 1739. [Washington, Govt. print. off., 1913] 19, 6 p. fold. charts. (63d Cong., 1st sess. House. Rept. 92) Serial 6513.

Pt. 2, "Minority views" (6 p.) submitted by Messrs. Ferris and Davenport, ordered printed December 9, 1913.

— — — Construction of railroads in Alaska. Jan. 31, 1914. Report to accompany S. 48. [Washington, Govt. print. off., 1914] 3 p. (63d Cong., 2d sess. House. Rept. no. 204) Serial 6558.

— — — The Copper River and northwestern railway in Alaska. Statements of Mr. Frank A. Law, attorney at law, Washington, D. C., Mr. John N. Steele, attorney at law, New York City. February 10, 15, 16, and 21, 1911. Washington, Govt. print. off., 1911. 68 p.

Hearings on Senate bill 6136, an act to relieve the Copper River and Northwestern Railway Co. in Alaska from taxation.

U. S. Congress. House. Committee on the territories. Government railroads in Alaska. Hearings, May 22, 1912. Washington, Govt. print. off., 1912. 39 p.

— — — Hearings before a sub-committee of the Committee on the territories . . . on transportation in Alaska. Statement of Hon. W. L. Fisher, Secretary of the interior, June 17, 1912. Washington, Govt. print. off. 1912. 27 p.

— — — Hearings . . . on H. 9770. "To levy and collect an income tax on railroads in Alaska and for other purposes." Parts 1 and 2. March 13 and 17, 1914. Washington, Govt. print. off., 1914. 31, 10 p.

— — — Hearings . . . on S. 2534, an act to extend the time for the completion of the Alaska northern railway, and for other purposes. Statements of George H. Patrick, esq., of Washington, D. C., and W. J. Boland, esq., of Toronto, Canada [Dec. 9, 1911] Washington, Govt. print. off., 1912. 13 p.

— — — Hearings . . . on conditions in Alaska . . . Jan. 16 [Feb. 27] 1912. Washington, Govt. print. off., 1912. 169 p.

Statements of Bishop Peter T. Rowe, Hon. Walter E.

Clark, Col. D. M. Stewart, W. M. Bunker, Dr. M. H. Foster, Hon. James Wickersham, and A. L. Moxey.

— — — — — Hearings . . . on conditions in Alaska. Commercial value of Alaska. Statement of Hon. James Wickersham, delegate from Alaska, March 29, 1912. Washington, Govt. print. off., 1912. 30 p.

— — — — — Hearings . . . on the bill H. R. 18526, to construct a railroad and telegraph line in the district of Alaska, and the bill H. R. 18533, to aid in the construction of a railroad and telegraph and telephone line in the territory of Alaska. February 2, 6, and 9, 1905. Washington, Govt. print. off., 1905. 69 p.

— — — — — Railroad and telegraph and telephone lines in Alaska. Report to accompany H. R. 18891. [Washington, Govt. print. off., 1906] 18 p. (59th Cong., 1st sess. House. Rept. 3874) Serial 4907.

— — — — — Railroad transportation in Alaska. Hearing of the Western Alaska construction company before the Committee on the territories. Friday, March 11, 1904. Washington, Govt. print. off., 1904. 13 p.

— — — — — Railroads in Alaska. Hearings [Jan. 9-March 1, 1906] . . . 59th Congress, 1st session. (With index and map) Washington, Govt. print. off., 1902. 179 p. Statements of experts.

— — — — — Railroads in Alaska. Hearings . . . 60th Congress, 1st session. [April 3-14, 1908] Washington, Govt. print. off., 1908. 80 p.

— — — — — Railroads in Alaska. Statements of Hon. James Wickersham . . . Oliver P. Hubbard . . . Falcon Joslin . . . O. G. Laberee . . . March 28-May 10, 1910. [Washington, Govt. print. off., 1910] 143 p.

U. S. Congress. House. Committee on the territories. Transportation in Alaska. Hearings . . . Feb. 27, Mar. 5, April 5, 6, 16 and 19, 1912. Washington, Govt. print. off., 1922. 5 pam.

Statements of O. P. Hubbard, of Valdez, William Sulzer,

of Sulzer, Falcon Joslin, of Fairbanks, and O. L. Dickinson, of Skagway, Alaska.

— — — *Senate*. Railroads in Alaska. Debate on the bill (S. 48) to authorize the President of the United States to locate, construct and operate railroads in the Territory of Alaska. June 23, 26, Dec. 8, 1913; Jan. 12, 13, 21, 23, March 10, May 22, 1914. (*In Congressional record for dates mentioned*)

Speeches of Senators Chamberlain, Jones and others.

— — — Debate in Senate, June 29, 1916. Congressional record, v. 53, no. 164, p. 11752-7.

[Includes speeches by Senators Pittman, Martin of Virginia, Smoot and Hughes, and text of contract between W. E. Stavert et al., syndicate committee, and Franklin K. Lane, Secretary of the interior, on sale of Alaska Northern railway]

— — — *Committee on public lands*. Government railroad and coal lands in Alaska. Hearing . . . on S. 4844, a bill to provide for the construction and operation of a railroad in Alaska . . . and S. 7030, a bill to provide for a permanent supply of coal for the use of the United States Navy and other governmental purposes . . . Part 1. . . . Washington, Govt. print. off., 1911. 10 p.

— — — *Committee on finance*. Income tax on railroads in Alaska. Report to accompany H. R. 9770 . . . to levy and collect an income tax on railroads in Alaska . . . July 8, 1914. [Washington, Govt. print. off., 1914] 2 p. 63d Cong., 2d sess. Senate Rept. 648) Serial 6553.

[Committee recommended passage of bill]

— — — *Committee on territories*. Alaska northern railway. Hearing . . . Sixty-second Congress, on S. 2534, A bill to extend the time for the completion of the Alaska northern railway, and for other purposes. July 28, 1911. . . . Washington, Govt. print. off., 1911. 10 p.

— — — — Construction of railroads in Alaska. Hearings . . . Sixty-third Congress, first session, on S.

48, a bill to authorize the President of the United States to locate, construct, and operate railroads in the territory of Alaska, and for other purposes, and S. 133, a bill to provide for the construction of railroads in Alaska, and for other purposes [May 2-23, 1913] (with addenda and index). Washington, Govt. print. off., 1913. 718 p.

- U. S. Congress. Senate. Committee on territories. Construction of railroads in Alaska. June 17, 1913. Report [to accompany S. 48 Washington, Govt. print. off., 1913] 3 p. (63d Cong., 1st sess. Senate. Rept. no. 65) Serial 6510.

—— ——— Public health along the line of the Alaska railroad. Hearings before the Committee . . . on S. 5790, a bill to confer additional authority upon the President of the United States in the construction and operation of the Alaskan railroad and for other purposes. May 12, 1916. Washington, Govt. print. off., 1916. 28 p.

—— ——— Railroad and telegraph and telephone lines in Alaska. Hearings on bills S. 6937 and S. 6980, February 10, 1905; bill S. 191, January 27, 1906; bill H. R. 18891, January 25, 1907, and Senate document no. 167, Fifty-ninth Congress, first session. Comp. by Thomas R. Shipp, clerk to the Senate committee on territories. Washington, Govt. print. off., 1907. 144 p. fold. map.

—— ——— Railroad, telegraph, and telephone lines in Alaska. Report. To accompany H. R. 18891. [Washington, Govt. print. off., 1907] 14, 9 p. (59th Cong., 2d sess. Senate Rept. 6625) Serial 5060.

Pt. 2: Views of Mr. Newlands together with amendment in the nature of a substitute intended to be proposed by Mr. Newlands to the bill (H. R. 18891), ordered printed February 21, 1907.

—— ——— Railroads for Alaska. Hearing . . . on railroads for Alaska. April 12, 1912 . . . Washington, Govt. print. off., 1912. 32 p.

[Statement of Mr. Falcon Joslin, representing the Alaskan Committee of the American mining congress]

- ——— Report . . . to accompany S. 5526, a bill to amend an act entitled "An act extending the homestead laws and providing for right of way for railroads in the district of Alaska," May 15, 1914. 1 p. (63d Cong., 2d sess. Senate. Rept. 520) Serial 6553.
- ——— Report . . . to accompany S. 5790, to confer additional authority upon the President of the United States in the construction of Alaskan railroads, May 15, 1916. 1 p. (64th Cong., 1st sess. Senate. Rept. 441) Serial 6899.
- U. S. *Dept. of the interior*. General information regarding the territory of Alaska. [1912- Washington, Govt. print. off., 1912-]
- ——— Railroads in Alaska. Letter from the Secretary of the interior, transmitting data in relation to railroads in Alaska under the act of May 14, 1898 . . . [Washington, Govt. print. off., 1908] 16 p. fold. map. (60th Cong., 2d sess. House Doc. 1201) Serial 5557.
- [Data from 1898 to 1908, including a list of railroad companies in Alaska, where incorporated, line of proposed route, maps, etc.]
- ——— Railroads in Alaska. Letter from the Secretary of the interior submitting a supplemental report as to the operations of certain railroad companies in Alaska. Jan. 4, 1909. [Washington, Govt. print. off., 1909] 2 p. (60th Cong., 2d sess. House. Doc. 1263) Serial 5557.
- ——— Railroads in Alaska. Letter from the acting secretary of the Treasury transmitting . . . estimate of appropriation in the sum of \$2,000,000 toward the construction and operation of railroads in Alaska. Feb. 1, 1915. [Washington, Govt. print. off., 1915] 2 p. (63d Cong., 3d sess. House. Doc. 1538) Serial 6892.
- ——— Regulations governing coal-land leases in the territory of Alaska. Approved May 18, 1916, with information regarding coal lands. Washington, Govt. print. off., 1916. 86 p. fold. map.

[Paragraphs on transportation from the various coal fields, with reference to the new government railroad]

- *Geological survey.* Letter from the Secretary of the interior, transmitting report of [J. W. Powell] director of the U. S. Geological survey on the merits of the bill S. 1907 "to facilitate the settlement and develop the resources of the territory of Alaska, and open an overland and commercial route between the United States, Asiatic Russia, and Japan," and the feasibility of the construction of the railroad proposed. [Washington, Govt. print. off., 1886] 10 p. 2 fold. maps. (49th Cong., 2nd sess. Senate Misc. doc. 22) Serial 2450.
- *Isthmian canal commission.* Letter from the chief of office of the Isthmian canal commission, transmitting in response to a Senate resolution of Aug. 23, 1913, certain letters containing information as to the amount, character, and value of construction machinery, and so forth, which it would be possible to transfer to the territory of Alaska upon completion of the Panama canal. Dec. 5, 1913 [Washington, 1913.] 8 p. (63d Cong., 2d sess. Senate. Doc. 258) Serial 6593.
- *Laws, statutes, etc.* Act to authorize the President to locate, construct, and operate railroads in Alaska, approved Mar. 12, 1914. (63d Congress. Public no. 69)
- — An act to levy and collect income tax on railroads in Alaska, and for other purposes. Approved July 18, 1914. (63d Congress. Public no. 144)
- President (Taft) Transportation in Alaska. Message from the President of the United States transmitting report of commission appointed to conduct an examination into the transportation question in the territory of Alaska, etc. [Washington, Govt. print. off., 1913] 5 p. (62d Cong., 3d sess. House. Doc. 1346) Serial 6484-5.
The "Message," only. Pub. also (with same document number) together with the report of the Alaska railroad commission as "Railway routes in Alaska."

- (Wilson) Executive order directing that the work of the Alaskan engineering commission be performed under the supervision and control of the Department of the interior. Jan. 26, 1915. [No. 2129] 1 p.
- Alaska. Executive order [authorizing free transportation of employees of government and their equipment, etc., when their official duties require them to travel over government railway in Alaska] June 5, 1916. [no. 2394] 1 p.
- Executive order. Alaska railroad no. 6 [establishing regulations for hospital service] June 30, 1916. [No. 2414] 4 p.
- Executive order, Alaska railroad no. 7 [extending provisions of act to provide compensation for employees of United States suffering injuries in performance of duties, etc., so as to include employees of Alaskan engineering commission] Sept. 29, 1916. [No. 2463] 1 p.
- Message transmitting report of the Alaskan engineering commission, together with maps, charts, and profiles. Jan. 19, 1916. [Washington, Govt. print. off., 1916] 1 p. (64th Cong., 1st sess. House. Doc. 610, pt. 1) Serial 6993-4.
- Note: For report and maps, see Part 2.
- *War department.* Opinion of War department on S. 48 and S. 133, with amendments proposed by department . . . Washington, Govt. print. off., 1913. 8 p.
- Railroad construction in the district of Alaska. Letter from the Secretary of war . . . relative to railroad construction in . . . Alaska. [Washington, Govt. print. off., 1906] 8 p. (59th Cong., 1st sess. Senate. Doc. no. 167) Serial 4912.

[Includes memorandum by Maj. W. P. Richardson, president of the Board of road commissioners of Alaska]

UNOFFICIAL PUBLICATIONS: BOOKS AND PAMPHLETS

American mining congress. *14th, Chicago, 1911.* Alaskan

problems. Reprint from Proceedings at the fourteenth annual session of the American mining congress, held at Chicago, Ill., October 24 to 28, 1911, . . . Washington, Govt. print. off., 1912. 43 p. ([U. S.] 62d Cong., 2d sess. Senate, Doc. 573) Serial 6176.

[Transportation problem considered]

Alaska short line railway and navigation company. The Alaska short line railway. Seattle, Wash., The Commonwealth [1903?] 36 p.

Boyce, William Dickson. Alaska, present and future; its railroads, mines, fisheries, agriculture, people and laws. What Alaska wants and needs . . . [n. p., 1913?] 48 p.

Alaska's railroads, present and future policies, p. 16-9.

Emerson, Harrington. The Alaskan railway problem. New York, The Emerson company, n. d. 3 p.

Printed also in Congressional record, Dec. 17, 1913, and Jan. 23, 1914.

Humphrey, William E. The Alaska short line railroad in Alaska. (Statement of Hon. W. E. Humphrey, M. C.) [Washington, Govt. print. off., 1909] 4 p.

Johnson, Albert. The defense of Alaska—the union of the white race and the problem of universal peace. Speech of Hon. Albert Johnson, of Washington, in the House of representatives, August 30, 1913 . . . Washington, Govt. print. off., 1913. 14 p.

[Treats of railroads and defenses of Alaska]

Jones, Wesley L. Alaska railroad to Bering coal fields. Reasons and argument in favor of the construction of fifty miles of railroad in Alaska to the Bering coal fields. In the Senate of the United States, April 19, 1916. Washington, 1916. 8 p.

Joslin, Falcon. Alaska; proposed legislation for government construction of railroads and leasing of coal lands. An address before the 15th session of the American mining congress, Spokane, Washington, Nov. 27th, 1912. 20 p.

Laberee, O. G. . . . Railroads in Alaska Letter . . . April 26, 1910 . . . Washington, Govt. print, off., 1916. 9 p.

[Letter to Hon. E. L. Hamilton, chairman of the Committee on territories, House of representatives, with regard to the Alaska northern railway company, and its need of coal from Mr. Laberee, president of the Alaska northern railway company]

Lenroot, I. L.—Government ownership of railroads in Alaska. Speech in the House of representatives, Dec. 17, 1913. Washington, Govt. print. off., 1914. 16 p.

Resolution requesting government aid in railroad construction on Seward peninsula (passed at a mass meeting of business men, miners and operators, on Mar. 14, 1914, at Nome, Alaska) Nome, 1914. 4 p.

Seattle. Chamber of commerce. *Alaska bureau*. Alaska, "Our frontier wonderland" . . . [5th ed., rev.] [Seattle] Alaska bureau, Seattle chamber of commerce, 1916. 112 p. illus., fold. map.

Railroads, p. 98-102.

Tuttle, Charles Richard. Alaska; its meaning to the world, its resources, its opportunities . . . Seattle, Wash., F. Shuey & Co., 1914. 318 p. plates, ports., maps.

[An interesting treatise on Alaska with some reference to its railway problems]

Wickersham, James. The Alaska railway bill. Speech in the House of representatives. Wednesday, Jan. 14 and 28, 1914. Washington, Govt. print. off., 1914. 136 p.

At head of title: Congressional record, 63 Congress, 2d session.

— Good roads, rail, and water transportation in Alaska. Speech . . . in the House of representatives, June 26, 1916. Washington, 1916. 15 p.

PERIODICAL ARTICLES

Alaskan railway problem. Outlook, Jan. 20, 1912, v. 100; 114-5.

Alaskan railroads. Railway and engineering review, May 24, 1913, v. 53: 484.

Alaska's new railway. National geographic magazine, Dec. 1915, v. 28: 567-89. illus.

[History of the Alaskan railroad project, and progress in construction]

Alaska's new railway. Spirit of missions, June, 1915, v. 80: 393.

[Missionary work to be simplified and stimulated by the new railway]

Anderson, Sydney. Governmental construction and operation of Alaskan railway. Case and comment, Nov. 1913, v. 20: 398-401.

[States that Congress has a constitutional right to construct and operate a railroad in Alaska. Arguments in favor of such action]

Bache, R. Moving a railroad six thousand miles. Technical world, July, 1912, v. 17: 558-61.

[Suggestion of Secretary Fisher that much of the contemplated Alaskan railroad and its equipment shall be transferred from the Isthmus of Panama by water to Resurrection Bay. Material and equipment—rails, locomotives, cars, etc.—no longer needed by Canal Commission]

Ballaine, J. E. Alaska's government railroad. Review of reviews, May, 1915, v. 51: 573-7. illus.

— The transportation interests of Alaska. Pacific monthly, June, 1906, v. 15: 754-61.

Brooks, A. H. The Alaska of to-day. Review of reviews, July, 1909, v. 40: 49-62.

— Development of Alaska by government railroads. Quarterly journal of economics, May, 1914, v. 28: 586-96.

[Reviews history of private enterprises, the need of further development and summarizes provisions of the Act of Mar. 12, 1914. Published also in Report of Governor of Alaska, 1914]

— Railway routes in Alaska. National geographic magazine, March, 1907, v. 18: 165-90.

Brown, A. A. By rail from Alaska to the Argentine. Alaska-Yukon magazine, June, 1907, v. 3: 301-8.

Brown, Ashmun. Uncle Sam's state-planning task. *Technical world*, Aug. 1915, v. 23: 719-25.

[Task of constructing a railway line from the Pacific seacoast to the interior waterways of Alaska involves plans for location of towns, water-power resources, farms, etc.]

Chase, F. H. Alaska's railroad development. Review of reviews, Dec. 1908, v. 38: 693-9.

[Describes roads under construction and difficulties to be met]

— Coal crisis in Alaska; government-owned railroads and government-leased coal lands the only solution. *Collier's*, Oct. 7, 1911, v. 48: 19-20.

Crane, W. R. Transportation in Alaska. *Engineering and mining journal*, Feb. 19, 1916, v. 101: 347-8.

Croffut, W. A. A railroad to the Yukon. *Frank Leslie's popular monthly*, April, 1900, v. 49: 645-57.

Dillard, C. H. Alaska; its railroads, mines, and the picturesque and natural scenery. *Railway conductor*, July, 1911, v. 28: 479-86.

Ellis, C. It had to be done [Copper River and Northwestern railway]. *Technical world*, Mar. 1912, v. 17: 2-13.

[Difficulties of construction graphically described]

Federal railroads for Alaska. *Literary digest*, May 31, 1913, v. 46: 1212.

[Refers to Secretary Lane's recommendations for a government railroad]

Fisher, Walter L. Alaska's needs. *Independent*, May 23, 1912, v. 72: 1094-6.

[Urges construction by Federal government of a trunk line railroad from the ocean to the Yukon and Tanana valleys, through the great Matanuska coal fields]

A government owned railway for Alaska. *Out west*, Sept. 1912, v. 3: 186-7.

Harrison, E. S. What is the Alaska syndicate doing? Facts about the Morgan-Guggenheim interests in Alaska taken

116 ALASKAN ENGINEERING COMMISSION

- from the testimony of Stephen Birch, managing director. Alaskan-Yukon magazine, May, 1910, v. 9: 374-82.
- Heilig, Frederick. Most urgent needs of Alaska. Alaska-Yukon magazine May, 1910, v. 9: 403-5.
- Hulbert, W. D. What is really going on in Alaska. Outlook, Dec. 23, 1911, Jan. 20, Mar. 23 and April 20, 1912, v. 99: 949-62; v. 100: 133-8, 675-83, 866-72.
- Articles entitled: (1) Wanted: a new deal in the coal fields (2) Bringing the coal to the sea (3) Fish, fur and forest—and a few other things (4) In the haunts of the syndicate.
- Hurja, E. E. Farthest north in railroading. Technical world, Oct. 1913, v. 20: 244-5.
- [Tanana Valley railroad one of the most daring transportation projects ever attempted in Alaska]
- Joslin, Falcon. Possibilities of the Tanana. Alaska-Yukon magazine, Dec. 1907, v. 4: 289-93.
- Railroad building in Alaska. Alaska-Yukon magazine, Jan. 1909, v. 7: 245-50.
- Lane, Franklin K. Governmental ownership of railroads in Alaska. Case and comment, Nov. 1913, v. 20: 397.
- [Copy of a letter sent to Senator Key Pitman, Chairman of the Senate Committee on territories, with respect to government ownership of railways in Alaska]
- Lumpkin, H. H. Uncle Sam's newest town. [Nenana, Alaska] Outlook, Oct. 25, 1916, v. 114: 455-8.
- [Constructed under government supervision, on line of Alaskan railway]
- McFarlin, Kirk. Difficulties of railroad maintenance in Alaska. Scientific American, May 20, 1916, v. 114: 523, 537.
- Mitchell, G. E. Government railroads for Alaska. Review of reviews, May, 1913, v. 47: 579-84.
- [Summary of report and recommendation of the Alaska railroad commission]
- Nation's pot of gold: need for railroads to harvest

- Alaska's riches. Bankers magazine, Dec. 1910, v. 81: 866.
- Nelson, F. L. Solving Alaska's transportation problem. World to-day, May, 1911, v. 20: 586-94.
- [History of the various railroad enterprises in Alaska]
- Pogue, J. E. Into the heart of Alaska: searching for a railroad route to the Tanana Valley. Travel, May, 1915, v. 25: 30-3.
- President Taft recommends government railroad building in Alaska. Railway and engineering review, Feb. 15, 1913, v. 53: 139-40.
- Proposed government ownership in Alaska. Railway age, May, 23, 1913, v. 54: 1119-20.
- Public coal and public rails and private farms and private gold in Alaska. Everybody's, June, 1915, v. 32: 781-2.
- [Short article referring to coal lands to be leased from government]
- Railroad on a glacier. Literary digest, June 28, 1913, v. 46: 1422.
- [The Copper River and Northwestern railroads runs for nearly seven miles over the lower end of the Allen glacier]
- Railroad routes in Alaska. American geographic society, Bulletin, June, 1913, v. 45: 431-5.
- Railway work in Alaska. Outlook, June 13, 1914, v. 107: 330.
- [Summary of] report of the Alaska railroad commission. Engineering news, Mar. 20, 1913, v. 69: 564-7.
- Riggs, Thomas. Government railroad in Alaska—what two years and limited funds have accomplished. Engineering record, May 6, 1916, v. 73: 600-3.
- Seward route for the Alaskan railway. Outlook, April 28, 1915, v. 109: 954-5.
- Smith, K. L. The most wonderful railroad of the North [The White Pass and Yukon railroad] Scientific American, Jan. 11, 1908, v. 98: 29-30.
- Springer, J. F. Alaskan railways. Scientific American, Jan. 17, 1920, v. 122: 62.

Swergal, E. E. Alaska's need of railway development. Railway age gazette, Sept. 5, 1913, v.55:421-3.

[Inadequacy of the existing lines and proposed improvements to open up the great national wealth of the region]

Talbot, F. A. A railway through Alaskan glaciers. World's work (London) Nov. 1912, v.20:642-50.

[Discusses the Copper river line]

To develop Alaska's resources. Independent, May 15, 1913, v. 74: 1099-1101.

Uncle Sam's Alaskan railroads, Literary digest, Jan. 3, 1920, v.64:95-96.

Underwood, J. J. Uncle Sam's own railroad. Sunset, Nov. 1916, v.37:23.

Wade, H. T. Progress of the Alaskan government railway. Review of reviews, Nov. 1916, v.54:543-4.

Wanted: a railway system. Literary digest, Sept. 27, 1913, v. 47: 519-20.

[Quotes from an article by E. E. Swergal in Railway Age Gazette Sept. 5, 1913. "More railway transportation is Alaska's crying need"]

Weems, Carrington. Alaska's transportation problem. World to-day, Mar. 1912, v. 21: 1893-1903.

[An unprejudiced discussion of the question as to whether the needed railroads should be built by the government or by private enterprise.]

— Government railroads in Alaska. North American review, April, 1914, v. 199: 573-84.

[Discusses history of the act which authorizes the building of a government railroad in Alaska. Outlines his reasons for opposing the project]

What a railroad will do. [Editorial] Alaska-Yukon magazine, Aug. 1909, v. 8: 372-3.

Wiley, D. A. Railroad building in Alaska, a remarkable

railway engineering feat. Scientific American supplement, July 13, 1912, v. 74: 24-6.

[Copper River railroad]

Wilson, Owen. To railroad prosperity into Alaska. World's work, Mar. 1914, v. 27: 512-32.

[Points out logical railroad routes and need of government aid]

Woolley, Monroe. Rails to revolutionize Alaska. Technical world, Feb. 1914, v. 20: 898-903.

[The Panama Canal needs the Alaska railroads, present and prospective. Likewise, Alaska's railroads need the canal]

MANUSCRIPTS

Joslin, Falcon. Statement of conditions affecting government railroad to be constructed in Alaska. n. p., 1914. 30 l

Mann, Seth. Report of Seth Mann, personal representative of the President on tour through Alaska under auspices of the Alaska Bureau of Seattle Chamber of commerce. June 21 to July 29, 1913. 19 l.

INDEX

- Accounting, division of, 36, 65.
- Activities, of Railroad Commission, 10-11; of Alaskan Engineering Commission, 45-58; classification of, 76-78.
- Alaska Central Railway Co., 6, 8.
- Alaska Home Railroad, 9.
- Alaska Northern Railroad, condition of, 15; evaluation and purchase of, 17, 26-27; rehabilitation of, 48; operation of, 49.
- Alaska Steamship Co., 36.
- Alaskan Railroad Record, 32, 79.
- Anchorage, construction begun from, 18, 25; receiving and forwarding department at, 21, 54; distribution of supplies to and from, 22-23; divisions established, 25; first townsite established at, 31; divisions combined with Seward division, 36; telephone system at, 48; terminal district organized in 1916, 50; dock operations at, 53; sale of lots at, 56; expenditures in, by Commission, 57-58.
- Annual reports, 79-80.
- Appropriations, 34, 39-43, 56-58, 97-98.
- Assistant Engineer of Maintenance and Construction, 64.
- Assistant Superintendent of Construction, 64.
- Assistant Superintendent of Track, 64.
- Auditor of Station Agents, 65.
- Bibliography, 99-118.
- Board of Road Commissioners, 48.
- Brooks, Alfred H., 10.
- Chairman of Commission, powers of, 60.
- Coal, contract for supply of, 20; operations in mining of, 20-21, 28, 51-53.
- Coastwise Steamship and Barge Co., 37.
- Commission, see Railroad Commission.
- Committee, on appropriations, 43; on foreign relations, 2; on territories, hearings of, on railroad construction, in Alaska, 8; on appropriations for Commission, 34-35, 42.
- Congress, bill introduced in, for railroad project, 2; refuses to grant franchises, 5; enacts general law for railroad construction, 5; hearings in, on governmental aid to railroads, 7; bills introduced on Alaska in 62nd session of, 10; authorizes construction, 12; action of, on appropriations, 34-35; effect of delay in appropriations by, 39-43; authorizes expenditures for coal cleaning plant, 43.
- Conservation movement, 10.
- Construction, of private railroads, 5-13; of government railroad, 18-44; activities of, 46-48.

- Copper River and Northwestern R. R., 15.
- Cost, estimates of, obtained by Commission, 17; of publication of Railroad Record, 132; of Alaska Northern, 48; of Tanana Valley Railroad, 48-49; of construction, 35, 38-39, 42; of coal production, 52; of maintenance estimated, 54.
- Costs, of transportation, effect of early railroad construction, upon, 5-6; per capita in placer districts, 1909, 9; importance of, in construction costs, 21; saving effected in, 21-22.
- Cox, Leonard M., 10.
- "Crook," arrangements made with War Dept. for operation of, 21.
- Department of Labor, 38.
- Disbursing Office, 68.
- Drafting Department, 64.
- Edes, W. C., 13, 18.
- Engineer, in charge, 65; of maintenance and construction, 63-64.
- Engineering representative, office of, established, 19; abolished, 20.
- Examiner of Accounts, 65.
- Executive orders, 90-96.
- Expenditures, summary of, 45-46; on rehabilitation of purchased roads, 48-49; on coal mining operations, 52; on town-sites, 57-58; total of, 98.
- Geological Survey, report of director of, 2-3.
- Gold, effect of discovery of, on railroad construction, 4; reduced production of, 43.
- Governor of Alaska, early views of, on transportation, 3-4; opinion of, on slow progress of railroad construction, 6; suggestion of, on regulation of railways, 7; appointment of investigating commission urged by, 9.
- Hearings, see Congress and Committee.
- Homestead Act, effect of, on railroad construction, 6.
- Hospitals, 54, 64.
- Ingersoll, Calvin M., 10.
- Interior, Department of, bill referred to, 2; work of construction placed under supervision of, 18; represented by manager of Land and Industrial Dept., 27-28.
- Interstate Commerce Commission, evaluation of Alaskan Northern R. R. verified by, 26; reports to, 50.
- Klondike, effect of discovery of gold in, 4-5.
- Land and Industrial Department, creation of, 27; duties of, 27-32, 55.
- Land Office, 20, 28, 30.
- Laws relating to Alaskan Engineering Commission, 84-90; index to, 81-84.
- Letters, of President to Secretary and of Secretary to Commission, 90-96.
- Lots, appraisal and sale of, 29-30, 56-58.
- Maintenance, 54-55; division of, 63-64.
- Matanuska, 56-58.
- Mears, Lieut. Frederick F., 13, 18, 32, 35, 41-42, 43, 61.

- Mechanical department, 64.
- Mines, Bureau of, 28.
- Mining Department, 64.
- Morrow, Maj. Jay J., 10.
- Northern Division, establishment of, 36; organization of, 64-65.
- Operation, of railroad, 37, 49-51; of coal mines, 51-53; of docks, 53; of power plants, 53; of miscellaneous services, 54-55.
- Organization, 59-75.
- Pacific Steamship Co., 36.
- Panama, supplies for government railroad obtained from, 18-19.
- Personnel, 66-75.
- Population, effect of, on railroad development, 2, 4.
- President of the United States, authority under Act of 1914, 12, 29, 40, 59, 62; selection of route for railroad by, 17; directs Commission to begin work, 17; withdraws tracts of public domain, 29; issues regulations for sale of lots, etc., 29-30; letters of, to Secretary of Interior, 90-96.
- Publications, 79-80.
- Purchase, of Alaska Northern Railroad, 26-27; office for, established, 19, 37; duties of engineering representative transferred to division of, 20; duties of division of, 66.
- Railroad Commission, appointment of, urged by Governor of Alaska, 9; appointment of, for investigation, 10; report of, 11; investigations of, utilized by Alaskan Engineering Commission, 16.
- Railroad Operating Division, 64.
- Railroads, causes for construction of, 4; commission to investigate questions of, 10; construction of, under act of 1898, 5-9; earning possibilities of, 43-44; construction of, by government, 18-44; effect of conservation movement upon, 10; effect of war upon, 32-33; failure of private construction of, 7, 9-10; history of, 1-13; first period, 2-5; period of private construction, 5-9; period of agitation for government railroad, 9-13; necessity for government construction of, 1, 11-12; obstacles to construction of, 3, 6, 7-9, 18, 32-33, 38-43; progress of, after Homestead Act, 6-7; report of railroad commission on, 11; Report of Alaskan Engineering Commission upon routes for, 17; situation of, prior to creation of commission, 1-13; survey of routes for, by commission, 13-17.
- Rates, 9, 11, 15, 50.
- Receiving and Forwarding Department, establishment of, 21.
- Reorganization, 35-36, 55.
- Resident Mining Engineer, 64.
- Riggs, Thomas Jr., 13, 18, 32, 61.
- Saw mills, 20, 54.
- Secretary of the Interior, directed to proceed with survey, 13; to purchase Alaska Northern and supervise construction, 17-18, 59, 62; to make land reservations, 29; order of, relating to schools, 31; to designate Chairman of Commission, 60; letters of and to, 90-96.
- Secretary of the Treasury, 57.
- Southern Division, establishment of, 36; organization of, 63-64.

- Station men, system of, 24.
Supplies and equipment, acquisition of, for government railroad, 18-21; transportation of, 21-22; distribution of, 22-23; consolidation of divisions of, 36; organization and function of divisions of, 65.
Superintendent of Construction and of Mines, 64.

Taft, Wm. H., 10, 11-12.
Tanana Valley R. R., condition of, 15; purchase of, 33-34; rehabilitation of, 48-49; operation of, 49-50.
Telegraph and Telephone, 47-48; Department of, 64.
Terminal facilities, 47.
Townsite and Railroad Record, Department of, 64.

Townsites, 27-31, 55-57.
Traffic, estimates of, 16, 43, 44n; development of, 27-32, 55-58.
Transportation, Department of, 64; development of, by Federal government, 5n, 9n; handling of matters relating to, 21-22, 36-37.

Valdez, Copper River and Yukon Railroad Co., 8.

Wagon roads, 48.
Wasilla, 56, 57, 58.
Water transportation, effect of, on railroad construction, 3; effect of war upon rates for, 21.
White Pass and Yukon R. R., 5, 22, 37.
Wilson, Woodrow, 18. See also President.

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